

TIROS IX ATTITUDE SUMMARY

(ORBITS 0-2677)

JAMES R. GREAVES
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 ADRIENNE ZENUK

ARACON GEOPHYSICS DIVISION
 ALLIED RESEARCH ASSOCIATES, INC
 VIRGINIA ROAD, CONCORD, MASSACHUSETTS

JUNE 1966

FIFTH TECHNICAL SUMMARY REPORT

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NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
 GODDARD SPACE FLIGHT CENTER
 AERONOMY AND METEOROLOGY DIVISION
 GREENBELT, MARYLAND

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SECTION 1

INTRODUCTION

During the period from the launch of TIROS IX (January 22, 1965) until August 31, 1965, ARACON Geophysics, a division of Allied Research Associates, Inc., shared the responsibility for determining the spin axis attitude of the satellite. ARACON Geophysics field personnel at two of the three Data Acquisition Sites (Wallop Island, Virginia; and Gilmore Creek (near Fairbanks), Alaska) extracted spin period ratios as determined from V-head scanner horizon crossing times.¹ These horizon crossing data were then transmitted to the TIROS Technical Control Center (TTCC), where attitude determinations were performed. At the same two sites, ARACON personnel also operated a specially developed film reader and ancillary data processing equipment to determine attitude using photogrammetric techniques.^{2, 3, 4}

The NASA Computation Center provided orbital information on the TIROS IX satellite. Updated orbital elements were issued approximately once a week after launch. These orbital elements, the V-head scanner data, and the photogrammetric attitude data were used by ARACON personnel, in a CDC-160A computer, to prepare operational geographic reference grids to match the television pictures at the Wallops Island, Gilmore Creek, and Point Mugu sites.

This report tabulates TIROS IX ascending node data (as furnished by NASA) and operational attitude data from the launch of TIROS IX until August 31, 1965.

The reader is cautioned that the TIROS IX system had many fundamental differences in design and operation from the previous, so-called conventional TIROS (I-VIII). Accordingly, the reader should not rely on a familiarity with the previous Attitude Summaries for TIROS III through VIII, published by ARACON.⁵ Section 2 of this report summarizes those aspects of TIROS IX required for the understanding and use of this report.

SECTION 2

SUMMARY OF THE TIROS IX SYSTEM

2.1 NOMINAL ATTITUDE AND ORBIT

TIROS IX operated in the so-called Cartwheel mode. Following launch, the satellite spin axis was torqued to its nominal operational attitude - perpendicular to the orbit plane, and then maintained as close as possible to this attitude. In April 1965, the spin axis was torqued by 180° to maximize the power available from the solar cells. Figure 1 shows a schematic of TIROS IX in its nominal, operating configuration.

With the satellite in its nominal attitude, the positive roll axis lies in the orbital plane, perpendicular to the local vertical and directed forward along the orbital track. The positive yaw axis is directed downward along the vertical, while the positive pitch axis is parallel to the nominal spin axis and directed to the right of the forward direction.

TIROS IX was launched into a near-polar retrograde orbit which would have been sun-synchronous at the nominal orbit altitude of 400 n. mi. The actual orbit achieved was not fully sun-synchronous, due to its excessive apogee. A typical set of TIROS IX orbital elements is provided in Appendix B (Table B-1).

Because of the rather elliptical orbit, positions along the orbit stated in times from ascending node (as was used in the previous TIROS Attitude Summaries⁵) vary widely as a function of the argument⁺ of perigee. Accordingly, in this Attitude Summary positions along the orbit are stated in terms of argument, and values of argument are marked along the subpoint track provided in Figure B-1.

2.2 SATELLITE CONFIGURATION

Figure 2 shows the arrangements of the cameras and attitude sensors in the TIROS IX satellite. The camera axes were pointed in opposite directions through the curved rim of the satellite. Each camera axis sweeps out a cone whose sides are inclined 26.5° to a plane perpendicular to the spin axis. Horizon crossing trigger sensors were designed to permit each camera shutter to operate only when its camera axis was most nearly vertical, assuming a nominal orbit altitude of 400 n. mi. Because

[†] The argument is the geocentric angle from ascending node, measured in the direction in which the satellite travels.

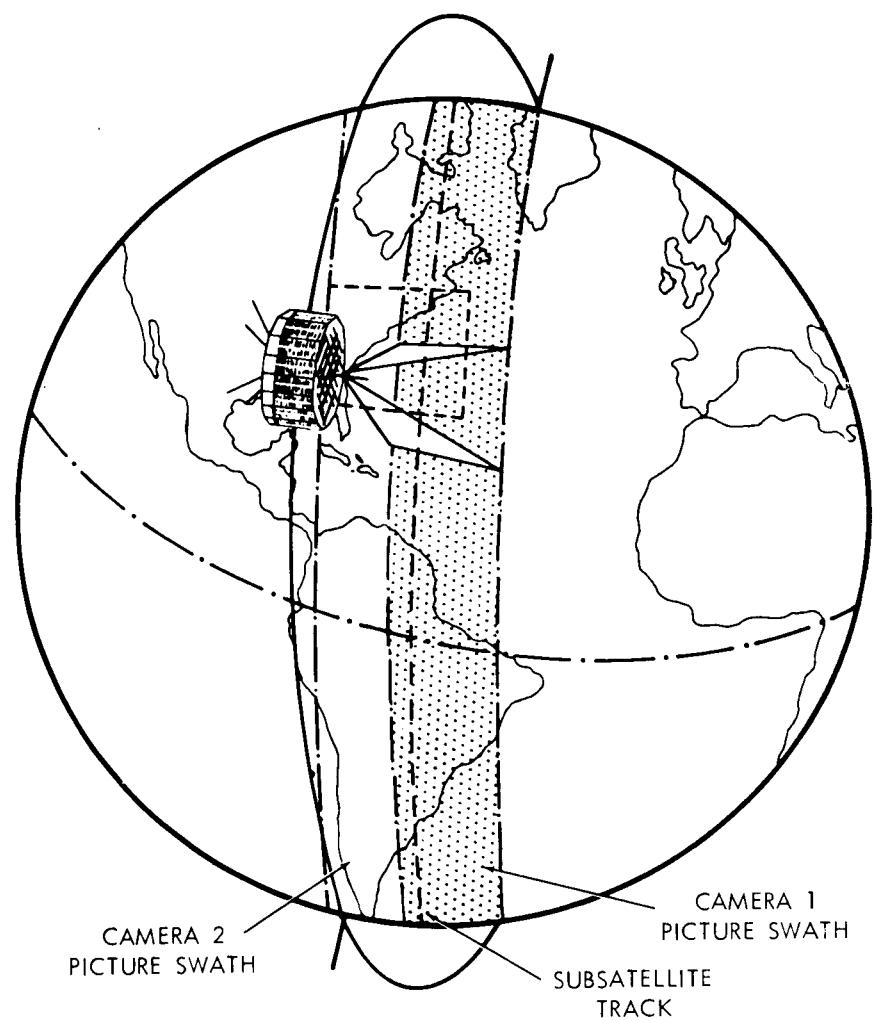


Fig. 1 TIROS IX Configuration (from Ref. 6).

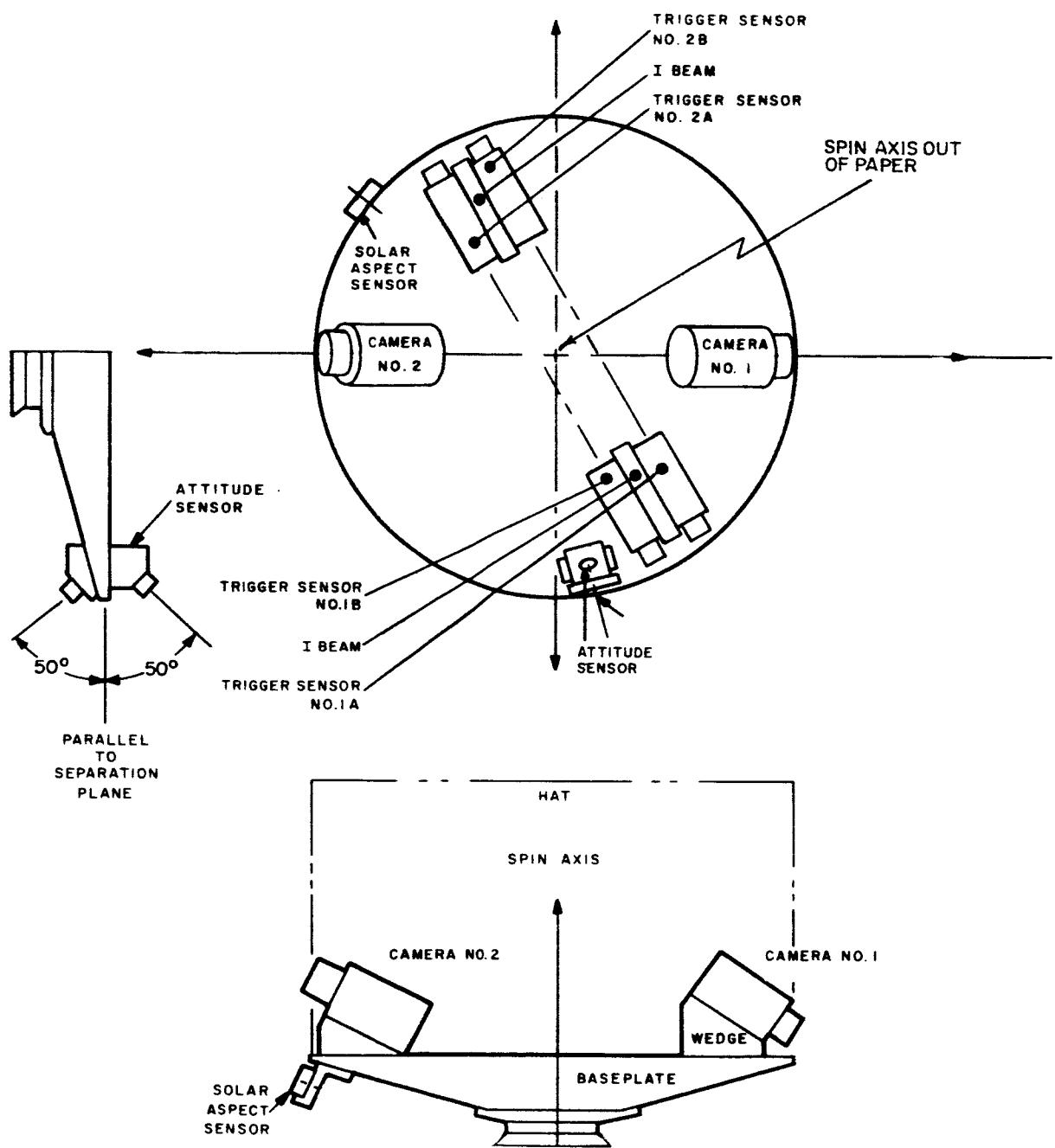


Fig. 2 TIROS IX Sensory and Camera System Arrangements (from RCA).

of the elliptical orbit actually achieved by TIROS IX, with a perigee of about 380 n. mi. and an apogee of about 1400 n. mi., the cameras usually triggered late and the pictures were taken with a negative pitch, resulting in camera nadir angles significantly greater than 26.5°.

2.3 V-HEAD SCANNERS

Spin axis attitude was determined by a V-head scanner horizon sensor (Fig. 2). The optics of this pair of sensors scanned two cones whose sides were inclined at a nominal 40° to the spin axis.

When the satellite has no roll error, both sensors of the V-head scanner observe equal lengths of earth scan as shown in Figure 3.

When a roll error does exist, one of the sensors on the V-head scanner records a shorter swath across the earth than the other, as shown in Figure 4. The difference in the lengths of the earth scans can be used, together with the satellite spin period (determined from either sensor) and the satellite altitude, to compute the error in roll.

Although the V-head scanner cannot detect yaw errors, the essentially fixed orientation of the spin axis in space (for time periods of at least an orbital period) leads to a sinusoidal variation in roll over each orbital period, and an equivalent sinusoidal variation in yaw displaced 90° in argument from the roll oscillation. Thus adequate observations of the roll error are sufficient to completely define the spin axis attitude over all parts of the orbit. The details of the procedures can be found in Reference 1.

Departures in roll and in satellite spin rate, as detected from the V-head scanner or other attitude data, were corrected by using the radio-commanded Quarter Orbit Magnetic Attitude Control (QUOMAC), the Magnetic Bias Control (MBC), and the Magnetic Spin Control (MASC).

Further information on the design and operation of TIROS IX can be found in Reference 6.

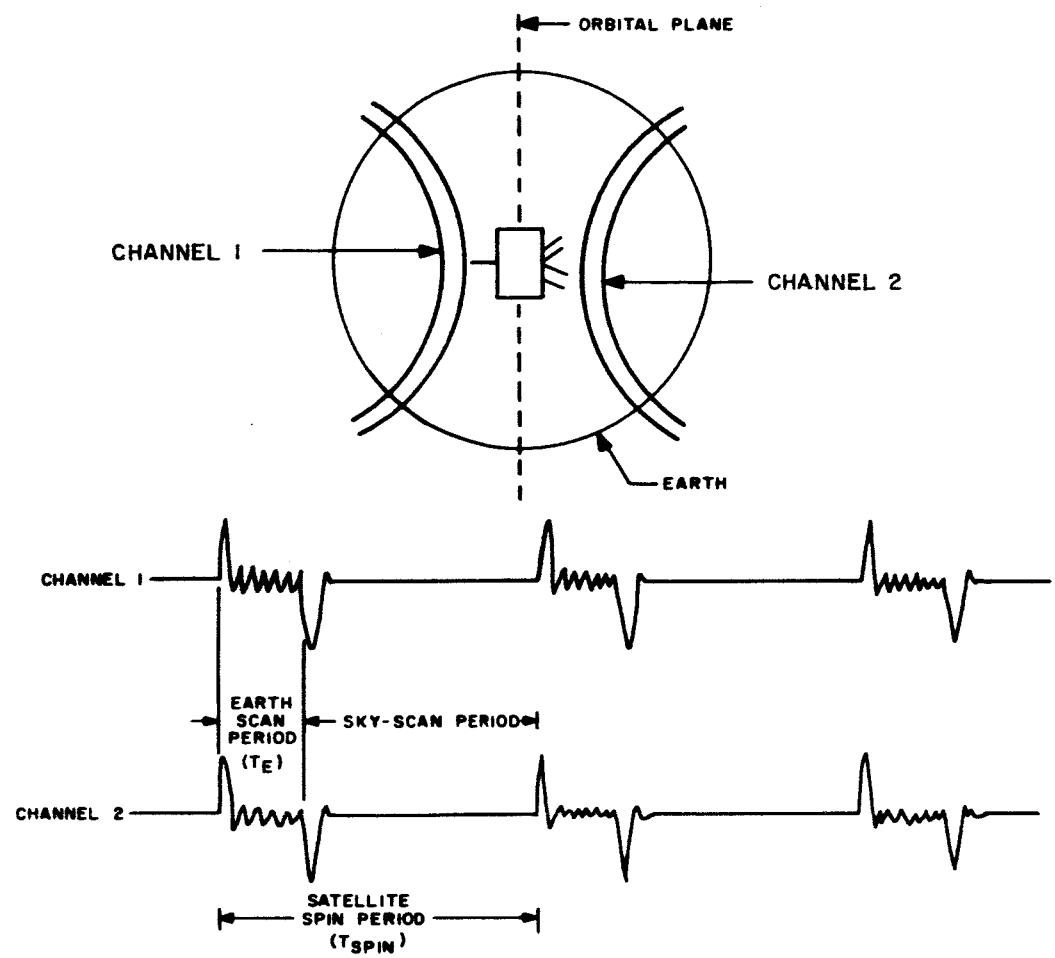


Fig. 3 Attitude-Sensor Data With No Attitude Error In Roll (from Ref. 1).

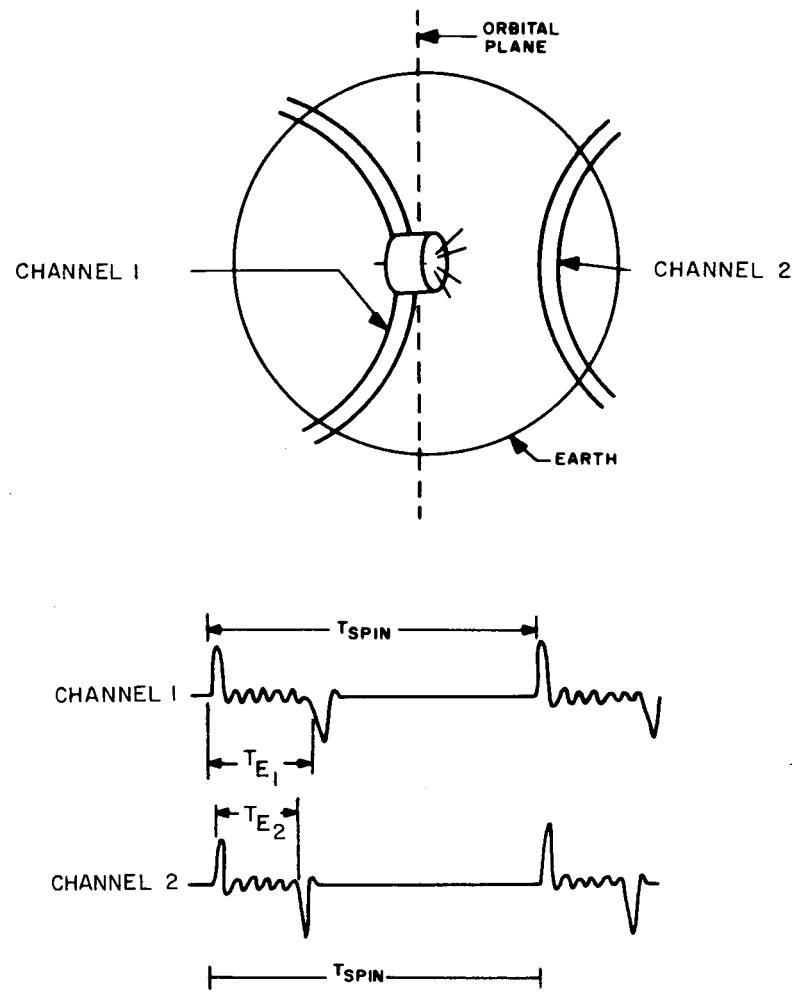


Fig. 4 Phasing of Attitude-Sensor Data for Roll Error Condition (from Ref. 1).

SECTION 3

ATTITUDE DEFINITIONS AND SOURCES

3.1 ATTITUDE DEFINITIONS

As discussed in Section 2, the attitude of the TIROS IX spin axis can be defined by its departures, in yaw and roll, from the nominal position of being perpendicular to the orbit plane. Furthermore, because of angular momentum conservation, the spin axis remains fixed in space over time periods of at least one orbit, and the roll error varies sinusoidally over each orbit. The yaw errors have a sinusoidal variation of the same magnitude but displaced in phase by 90° of argument. Accordingly, the spin axis attitude is fully defined by stating the amplitude of the roll error and the position in argument of a specified phase of roll.

The convention has been adopted of defining the spin axis attitude in terms of

ϕ_{\max} , the maximum departure in roll of the spin axis from its nominal attitude of being perpendicular to the orbital plane. ϕ_{\max} is stated in degrees. (The maximum departure in yaw has the same absolute value as ϕ_{\max} .)

λ_0 , the value of argument at which ϕ (the roll angle) is zero and is passing from negative to positive values of roll. Positive roll is taken as a clockwise rotation of the spin axis when looking forward along the velocity vector. λ_0 is stated in degrees of argument. Argument is zero at ascending node and increases along the orbit in the direction of the satellite motion.

The roll angle, ϕ , at any other value of argument, λ , is then determined from

$$\phi = \phi_{\max} \sin (\lambda - \lambda_0)$$

The yaw angle, ψ , at any value of argument is then

$$\psi = \phi_{\max} \cos (\lambda - \lambda_0)$$

3.2 V-HEAD SCANNER DATA

At the CDA stations, ARACON personnel analyzed the V-Head Scanner Data as displayed on Sanborn Recording charts to determine the points defined as sky-earth and earth-sky horizon crossings. (Idealized examples of the recording charts are shown at the bottoms of Figures 3 and 4.) At prescribed intervals, the analysts determined for each of the two V-head scanner horizon sensors the ratio T_E/T_{SPIN} , where T_E is the earth scan period and T_{SPIN} is the satellite spin period. The times to which each pair of ratios applied were also recorded. After each pass, these data were transmitted by teletype to TTCC.

At TTCC, roll angle nomograms were used to determine the instantaneous roll angle from the T_E/T_{SPIN} ratios. The instantaneous roll angles, ϕ , and the times to which they applied, were recorded. These procedures are discussed in detail in Reference 1.

The instantaneous roll angles as determined from the V-head scanner data were plotted, and the sine curve overlays used to determine ϕ_{max} and λ_o (Ref. 1).

3.3 PHOTOGRAHMETRIC ATTITUDES

At Wallops Island and Gilmore Creek, ARACON personnel operated the specially developed photogrammetric attitude film reader. These film readers displayed to the operator two adjacent TIROS frames and a landmark snap slide. A dual crosswire system permitted the analyst to encode various data points appearing on the screen. Three classes of data points are used in the photogrammetric techniques: horizon points, landmarks, and matchpoints.

The most heavily used photogrammetric technique employed the horizon data. This was due to the ready availability of horizon images in TIROS IX photography, the relative ease with which these data can be encoded, and the speed of the computer horizon program. From the relative location of the horizon in the image plane, instantaneous roll and pitch values can be obtained. When recognizable earth features appearing in the pictures are encoded simultaneously with the corresponding points in the landmark slides, all three attitude parameters may be established for that frame. When matchpoints (common features occurring in the overlap area of two successive frames) are encoded, attitude information may be generated for frames with neither landmarks nor usable horizon images.

The output of the film reader is a paper tape containing the X, Y coordinates of the various data points. This tape was used as an input to a CDC 160-A computer for actual calculation of the instantaneous attitude values using iterative techniques. A sophisticated curve fitting program was used to generate phi-max and lambda values from the instantaneous rolls and yaws. In the process of curve fitting, this program systematically eliminated deviant points on the basis of statistical probabilities. The resultant phi-max and lambda values displayed a smoothness on a day to day basis which had never been accomplished in the minimum nadir angle histories used for gridding conventional TIROS pictures.

References 2, 3, and 4 should be consulted for the details of operation, hardware, and mathematics respectively of the photogrammetric techniques. Reference 4 also outlines the programming details used in the 160-A computer.

SECTION 4

SPECIFIC SOURCES OF TABULATED DATA

4. 1 ASCENDING NODE DATA

4. 1. 1 Ascending Node Time

The times of northbound equator crossings were in all cases taken from NASA's "Definitive Equator Crossings for TIROS IX" or "ASNOUT" listings. Times listed in the operational teletype messages of equator crossings could not be used because the times were frequently in error, occasionally by as much as 30 seconds.

4. 1. 2 Ascending Node Longitudes

The ascending node longitudes were in all cases extracted from NASA's teletype equator crossing listings. These longitude listings appear to be correct.

4. 2 ATTITUDE DATA (ϕ_{\max} AND λ_o)

4. 2. 1 Launch to March 6, 1965

During this period there were occasional gaps in the original teletype attitude messages. There were frequent inconsistencies between the "definitive" and "operational" messages, and often between succeeding "definitive" messages. As there were no film reader data available for this period, the data tabulated in this summary were taken from NASA's "Definitive ATMAP."

4. 2. 2 March 6, 1965, to July 15, 1965

The attitude data for this period as tabulated in this report are based almost entirely on the ARACON photogrammetric results. It was these data which were used in the generation of the operational guide for the TIROS IX pictures.

4. 2. 3 Subsequent to July 15, 1965

Starting July 15, 1965, a phase out of ARACON operations at the CDA stations was begun, and the coverage by photogrammetric data becomes intermittent. Rather than rely on the teletype attitude messages, tabulated data for this period were again taken from NASA's "Definitive ATMAP."

4. 3 OTHER DATA (QUOMAC, MBC, MASC, SATELLITE SPIN-UP)

In previous TIROS Attitude Summaries (Ref. 5), data on magnetic attitude control settings and on the times of the spin-up rocket fixings have been included. Due to the very frequent changes in these various settings for TIROS IX, it was agreed that these data would not be included in the TIROS IX summary. The attitude changes occasioned by changes in these control settings were more gradual than the abrupt shifts in attitude trends experienced in previous TIROS satellites.

4. 4 TABULATED DATA

The TIROS IX Ascending Node times and longitudes, and the attitude parameters (ϕ_{\max} and λ_o) are tabulated in Appendix A.

Table A-1 provides definitions of the columns and headers used in Table A-2; Table A-2 provides the actual data. It should be noted that abrupt jumps in the value of λ_o for small values of ϕ_{\max} are of relatively little significance. As ϕ_{\max} approaches zero, the concept of λ_o becomes meaningless.

Appendix B provides data on the TIROS IX orbit in terms of a plotted subpoint track (Fig. B-1) and a typical set of orbital elements (Table B-1).

APPENDIX A

OPERATIONAL ATTITUDE DATA

A. 1 INTRODUCTION

This appendix contains the TIROS IX Operational Attitude data as determined by ARACON Geophysics on-site personnel during the period from launch through 31 August 1965. No attempt has been made to apply smoothing techniques as a result of hindsight. Table A-1 provides a brief explanation of the abbreviations appearing in the Header of the Operational Attitude Data of Table A-2.

A. 2 TIROS IX OPERATIONAL ATTITUDE DATA

Table A-2 is divided into two basic sections. Columns "a" through "d" contain data obtained directly from the NASA Computation Center. Columns "e" and "f" contain the operational attitude parameters.

TABLE A-1

TABLE HEADERS USED IN TABLE A-2

Column	Header	Explanation
a	Date	Greenwich Mean date on which the ascending node of the orbit in column c occurred.
b	Julian Day	System Day. (Also called J-Day). Julian Day 0 = Launch Day (January 22, 1965).
c	Orbit Number	Labeled consecutively with each crossing of the earth's equator from south to north. Launch and injection are considered to occur on orbit zero.
d	Ascending Node	Greenwich Mean Time and longitude at which the satellite crossed the equator from south to north.
e	λ_o	Parameters used to define the attitude of the TIROS IX spin axis. λ_o is the value of argument at which the roll is zero and is passing from negative to positive values.
f	ϕ_{max}	ϕ_{max} is the maximum departure of roll from zero. [†]

[†] λ_o is stated in degrees of argument; ϕ_{max} in degrees of angle.

TABLE A-2
TIROS IX OPERATIONAL ATTITUDE DATA

a DATE	b JULIAN DAY	c ORBIT NUMBER	d ASCENDING NODE Longitude (Deg)	d ASCENDING NODE Time (GMT) (Hr Min Sec)	e λ_o (Deg)	f ϵ_{max} (Deg)
January 22, 1965	0	1	080.86E	09 03 33	182.69	75.61
"	0	2	051.01E	11 02 47	181.66	76.42
"	0	3	021.17E	13 02 01	181.44	83.22
"	0	4	008.67W	15 01 14	181.86	89.89
"	0	5	038.51W	17 00 28	181.78	79.98
"	0	6	068.36W	18 59 42	181.06	75.01
"	0	7	098.21W	20 58 56	180.71	68.01
January 22, 1965	0	8	128.05W	22 58 09	180.17	61.08
January 23, 1965	1	9	157.90W	00 57 23	179.85	54.22
"	1	10	172.25E	02 56 37	180.20	47.36
"	1	11	142.40E	04 55 51	181.93	40.78
"	1	12	112.56E	06 55 04	182.45	39.84
"	1	13	082.71E	08 54 18	183.53	37.27
"	1	14	052.86E	10 53 32	184.85	34.71
"	1	15	023.02E	12 52 46	185.51	27.55
"	1	16	006.82W	14 51 59	185.22	20.28
"	1	17	036.67W	16 51 13	178.56	13.79
"	1	18	066.51W	18 50 27	166.83	12.51
"	1	19	096.36W	20 49 41	151.71	6.26
January 23, 1965	1	20	126.21W	22 48 54	149.64	6.35
January 24, 1965	2	21	156.05W	00 48 08	105.71	2.95
"	2	22	174.09E	02 47 22	106.86	2.75
"	2	23	144.25E	04 46 36	110.06	2.32
"	2	24	114.40E	06 45 49	112.18	2.13
"	2	25	084.55E	08 45 03	114.97	1.91
"	2	26	054.71E	10 44 17	118.52	1.69
"	2	27	024.86E	12 43 31	123.10	1.48
"	2	28	004.98W	14 42 45	129.14	1.28
"	2	29	034.82W	16 41 58	137.26	1.10
"	2	30	064.67W	18 41 12	148.18	0.96
"	2	31	094.51W	20 40 26	145.54	0.99
January 24, 1965	2	32	124.36W	22 39 40	142.93	1.02

TABLE A-2
TIROS IX OPERATIONAL ATTITUDE DATA

a DATE	b JULIAN DAY	c ORBIT NUMBER	d ASCENDING NODE Longitude (Deg)	d ASCENDING NODE Time (GMT) (Hr Min Sec)	e λ_o (Deg)	f ϕ_{max} (Deg)
January 25, 1965	3	33	154.21W	00 38 53	140.47	1.05
	"	34	175.94E	02 38 07	138.16	1.08
	"	35	146.09E	04 37 21	136.00	1.12
	"	36	116.24E	06 36 35	133.97	1.16
	"	37	086.40E	08 35 48	132.07	1.19
	"	38	056.55E	10 35 02	130.30	1.23
	"	39	026.70E	12 34 16	128.63	1.27
	"	40	003.13W	14 33 30	127.07	1.32
	"	41	032.98W	16 32 43	125.61	1.36
	"	42	062.82W	18 31 57	124.23	1.40
	"	43	092.67W	20 31 11	122.78	1.45
January 25, 1965	3	44	122.52W	22 30 25	121.18	1.51
January 26, 1965	4	45	152.37W	00 29 38	119.69	1.57
	"	46	177.78E	02 28 52	118.31	1.63
	"	47	147.93E	04 28 06	117.03	1.69
	"	48	118.08E	06 27 20	115.84	1.75
	"	49	088.24E	08 26 33	114.73	1.81
	"	50	058.39E	10 25 47	113.69	1.87
	"	51	028.55E	12 25 01	112.72	1.93
	"	52	001.29W	14 24 15	111.81	1.99
	"	53	031.14W	16 23 28	110.95	2.06
	"	54	060.98W	18 22 42	110.15	2.12
	"	55	090.83W	20 21 56	109.39	2.18
January 26, 1965	4	56	120.68W	22 21 09	108.68	2.25
January 27, 1965	5	57	150.52W	00 20 23	108.31	2.28
	"	58	179.62E	02 19 37	126.02	1.57
	"	59	149.77E	04 18 51	126.39	1.56
	"	60	119.93E	06 18 04	126.76	1.56
	"	61	090.08E	08 17 18	127.15	1.55
	"	62	060.24E	10 16 32	127.55	1.54
	"	63	030.39E	12 15 46	127.96	1.53
January 27, 1965	5	64	000.54E	14 14 59	128.37	1.52

TABLE A-2

TIROS IX OPERATIONAL ATTITUDE DATA

a DATE	b JULIAN DAY	c ORBIT NUMBER	d ASCENDING NODE Longitude (Deg)	e λ_o (Deg)	f ϕ_{max} (Deg)
January 27, 1965	5	65	029.29W	16 14 13	128.78 1.51
"	5	66	059.14W	18 13 27	129.20 1.50
"	5	67	088.99W	20 12 41	129.63 1.49
January 27, 1965	5	68	118.83W	22 11 54	130.06 1.48
January 28, 1965	6	69	148.68W	00 11 08	130.49 1.47
"	6	70	178.53W	02 10 22	125.03 1.28
"	6	71	151.62E	04 09 35	309.98 0.94
"	6	72	121.77E	06 08 49	305.99 1.24
"	6	73	091.93E	08 08 03	306.92 1.20
"	6	74	062.08E	10 07 17	307.93 1.15
"	6	75	032.23E	12 06 30	309.02 1.11
"	6	76	002.39E	14 05 44	310.20 1.06
"	6	77	027.45W	16 04 58	311.49 1.02
"	6	78	057.30W	18 04 12	312.89 0.97
"	6	79	087.14W	20 03 25	314.42 0.93
January 28, 1965	6	80	116.99W	22 02 39	314.91 0.91
January 29, 1965	7	81	146.84W	00 01 53	315.43 0.89
"	7	82	176.68W	02 01 06	315.97 0.87
"	7	83	153.46E	04 00 20	316.54 0.85
"	7	84	123.62E	05 59 34	317.14 0.83
"	7	85	093.77E	07 58 47	317.76 0.81
"	7	86	063.92E	09 58 01	318.42 0.79
"	7	87	034.08E	11 57 15	319.11 0.77
"	7	88	004.23E	13 56 29	319.84 0.75
"	7	89	025.61W	15 55 42	320.61 0.73
"	7	90	055.45W	17 54 56	321.41 0.71
"	7	91	085.30W	19 54 10	322.27 0.69
"	7	92	115.14W	21 53 23	323.17 0.67
January 29, 1965	7	93	144.99W	23 52 37	324.13 0.65
January 30, 1965	8	94	174.84W	01 51 51	324.12 0.54
"	8	95	155.31E	03 51 04	166.09 0.84
January 30, 1965	8	96	115.46E	05 50 18	167.48 0.83

TABLE A-2
TIROS IX OPERATIONAL ATTITUDE DATA

a DATE	b JULIAN DAY	c ORBIT NUMBER	d ASCENDING NODE Longitude (Deg)	d Time (GMT) (Hr Min Sec)	e λ_o (Deg)	f ϕ_{max} (Deg)
January 30, 1965	8	97	095.61E	07 49 32	165.15	0.80
"	8	98	065.77E	09 48 46	158.70	0.77
"	8	99	035.92E	11 47 59	151.86	0.76
"	8	100	006.07E	13 47 13	144.81	0.75
"	8	101	023.76W	15 46 27	137.75	0.76
"	8	102	053.61W	17 45 40	130.89	0.77
"	8	103	083.45W	19 44 54	124.40	0.80
"	8	104	113.30W	21 44 08	121.00	0.83
January 30, 1965	8	105	143.15W	23 43 21	118.57	0.85
January 31, 1965	9	106	172.99W	01 42 35	116.23	0.86
"	9	107	157.15E	03 41 49	113.97	0.88
"	9	108	127.30E	05 41 02	111.81	0.90
"	9	109	097.46E	07 40 16	109.73	0.92
"	9	110	067.61E	09 39 30	107.66	0.94
"	9	111	037.77E	11 38 44	105.78	0.96
"	9	112	007.92E	13 37 57	103.98	0.99
"	9	113	021.92W	15 37 11	102.26	1.01
"	9	114	051.76W	17 36 25	100.63	1.04
"	9	115	081.61W	19 35 39	99.07	1.06
"	9	116	111.46W	21 34 52	98.84	1.08
January 31, 1965	9	117	141.30W	23 34 06	98.71	1.09
February 1, 1965	10	118	171.15W	01 33 20	98.57	1.10
"	10	119	159.00E	03 32 34	98.44	1.10
"	10	120	129.15E	05 31 47	98.31	1.11
"	10	121	099.30E	07 31 01	98.18	1.12
"	10	122	069.46E	09 30 15	98.05	1.13
"	10	123	039.61E	11 29 29	97.92	1.14
"	10	124	009.77E	13 28 42	97.80	1.14
"	10	125	020.07W	15 27 56	97.68	1.15
"	10	126	049.92W	17 27 10	97.56	1.16
"	10	127	079.76W	19 26 24	97.44	1.17
February 1, 1965	10	128	109.61W	21 25 37	97.11	1.18

TABLE A-2

TIROS IX OPERATIONAL ATTITUDE DATA

a DATE	b JULIAN DAY	c ORBIT NUMBER	d ASCENDING NODE Longitude (Deg)	e λ_o (Deg)	f ϕ_{max} (Deg)
February 1, 1965	10	129	139. 46W	23 24 51	96.68
February 2, 1965	11	130	169. 31W	01 24 05	96.24
"	11	131	160. 83E	03 23 19	95.79
"	11	132	130. 98E	05 22 32	95.33
"	11	133	101.14E	07 21 46	94.86
"	11	134	071. 29E	09 21 00	94.38
"	11	135	041. 45E	11 20 13	93.89
"	11	136	011. 60E	13 19 27	93.38
"	11	137	018. 23W	15 18 41	92.87
"	11	138	048. 08W	17 17 55	92.34
"	11	139	077. 93W	19 17 08	91.80
"	11	140	107. 77W	21 16 22	91.49
February 2, 1965	11	141	137. 62W	23 15 36	91.17
February 3, 1965	12	142	167. 47W	01 14 49	90.86
"	12	143	162. 68E	03 14 03	90.55
"	12	144	132. 83E	05 13 17	90.25
"	12	145	102. 99E	07 12 31	89.95
"	12	146	073. 14E	09 11 44	89.66
"	12	147	043. 29E	11 10 58	89.38
"	12	148	013. 45E	13 10 12	89.10
"	12	149	016. 39W	15 09 25	88.82
"	12	150	046. 23W	17 08 39	88.47
"	12	151	076. 08W	19 07 53	249.88
"	12	152	105. 93W	21 07 07	250.12
February 3, 1965	12	153	135. 77W	23 06 20	250.30
February 4, 1965	13	154	165. 62W	01 05 34	250.46
"	13	155	164. 53E	03 04 48	250.45
"	13	156	134. 68E	05 04 01	250.27
"	13	157	104. 83E	07 03 15	250.09
"	13	158	074. 99E	09 02 29	249.90
"	13	159	045. 14E	11 01 42	249.71
February 4, 1965	13	160	015. 30E	13 00 56	249.52

TABLE A-2
TIROS IX OPERATIONAL ATTITUDE DATA

a DATE	b JULIAN DAY	c ORBIT NUMBER	d ASCENDING NODE Longitude (Deg)	e λ_o (Deg)	f ϕ_{max} (Deg)
February 4, 1965	13	161	014.54W	249.32	0.69
"	13	162	044.39W	249.12	0.68
"	13	163	074.23W	248.91	0.67
"	13	164	104.08W	248.70	0.67
February 4, 1965	13	165	133.92W	248.49	0.66
February 5, 1965	14	166	163.77W	248.27	0.65
"	14	167	166.38E	248.04	0.64
"	14	168	136.53E	247.81	0.64
"	14	169	106.68E	247.67	0.63
"	14	170	076.84E	247.98	0.64
"	14	171	046.99E	248.27	0.65
"	14	172	017.15E	248.56	0.66
"	14	173	012.69W	248.84	0.67
"	14	174	042.54W	249.11	0.67
"	14	175	072.38W	249.38	0.68
"	14	176	102.23W	249.64	0.69
February 5, 1965	14	177	132.07W	249.89	0.70
February 6, 1965	15	178	161.92W	250.14	0.71
"	15	179	168.23E	250.38	0.72
"	15	180	138.38E	250.62	0.73
"	15	181	108.53E	250.83	0.73
"	15	182	078.69E	251.01	0.74
"	15	183	048.84E	251.18	0.75
"	15	184	019.00E	251.35	0.75
"	15	185	010.84W	251.51	0.76
"	15	186	040.68W	251.67	0.77
"	15	187	070.53W	251.83	0.77
"	15	188	100.38W	251.99	0.78
February 6, 1965	15	189	130.22W	252.15	0.78
February 7, 1965	16	190	160.07W	252.30	0.79
"	16	191	170.08E	252.45	0.80
February 7, 1965	16	192	140.23E	252.60	0.80

TABLE A-2

TIROS IX OPERATIONAL ATTITUDE DATA

a DATE	b JULIAN DAY	c ORBIT NUMBER	d ASCENDING NODE Longitude (Deg)	e λ_o (Deg)	f ϕ_{max} (Deg)
February 7, 1965	16	193	110.39E	06 35 27	252.74 0.81
"	16	194	080.54E	08 34 40	252.87 0.81
"	16	195	050.69E	10 33 54	252.99 0.82
"	16	196	020.85E	12 33 07	253.11 0.83
"	16	197	008.99W	14 32 21	253.23 0.83
"	16	198	038.83W	16 31 35	253.35 0.84
"	16	199	068.68W	18 30 48	253.47 0.84
"	16	200	098.52W	20 30 02	253.58 0.85
February 7, 1965	16	201	128.37W	22 29 15	253.70 0.86
February 8, 1965	17	202	158.21W	00 28 29	253.81 0.86
"	17	203	171.93E	02 27 43	253.92 0.87
"	17	204	142.06E	04 26 56	254.03 0.87
"	17	205	112.24E	06 26 10	254.14 0.88
"	17	206	082.39E	08 25 23	254.40 0.89
"	17	207	052.55E	10 24 37	254.66 0.91
"	17	208	022.70E	12 23 51	254.90 0.92
"	17	209	007.13W	14 23 04	255.14 0.94
"	17	210	036.98W	16 22 18	255.38 0.95
"	17	211	066.82W	18 21 31	255.68 0.98
"	17	212	096.67W	20 20 45	255.97 1.00
February 8, 1965	17	213	126.52W	22 19 59	256.24 1.03
February 9, 1965	18	214	156.36W	00 19 12	256.50 1.05
"	18	215	173.78E	02 18 26	256.28 1.05
"	18	216	143.94E	04 17 39	256.06 1.05
"	18	217	114.09E	06 16 53	255.84 1.06
"	18	218	084.25E	08 16 06	255.63 1.06
"	18	219	054.40E	10 15 20	255.41 1.06
"	18	220	024.56E	12 14 34	255.20 1.06
"	18	221	005.28W	14 13 47	254.98 1.06
"	18	222	035.12W	16 13 01	254.77 1.06
"	18	223	064.97W	18 12 14	254.55 1.06
February 9, 1965	18	224	094.81W	20 11 28	254.65 1.06

TABLE A-2
TIROS IX OPERATIONAL ATTITUDE DATA

a DATE	b JULIAN DAY	c ORBIT NUMBER	d ASCENDING Longitude (Deg)	NODE Time (GMT) (Hr Min Sec)	e λ_o (Deg)	f ϕ_{max} (Deg)
February 9, 1965	18	225	124.66W	22 10 41	254.73	1.06
February 10, 1965	19	226	154.50W	00 09 55	254.78	1.06
"	19	227	175.64E	02 09 08	254.86	1.06
"	19	228	145.79E	04 08 22	254.94	1.05
"	19	229	115.95E	06 07 35	255.02	1.05
"	19	230	086.10E	08 06 49	255.10	1.05
"	19	231	056.26E	10 06 02	255.18	1.05
"	19	232	026.41E	12 05 16	255.26	1.05
"	19	233	003.42W	14 04 30	255.34	1.04
"	19	234	033.27W	16 03 43	255.43	1.04
"	19	235	063.11W	18 02 56	255.51	1.04
"	19	236	092.96W	20 02 10	255.59	1.04
February 10, 1965	19	237	122.80W	22 01 24	254.38	1.03
February 11, 1965	20	238	152.65W	00 00 37	253.15	1.02
"	20	239	177.50E	01 59 51	251.90	1.02
"	20	240	147.65E	03 59 04	250.64	1.01
"	20	241	117.81E	05 58 18	249.36	1.01
"	20	242	087.96E	07 57 31	248.07	1.00
"	20	243	058.12E	09 56 45	246.77	1.00
"	20	244	028.27E	11 55 58	245.46	0.99
"	20	245	001.56W	13 55 12	244.14	0.99
"	20	246	031.41W	15 54 25	243.28	1.00
"	20	247	061.25W	17 53 39	268.42	5.42
"	20	248	091.10W	19 52 52	270.05	10.17
"	20	249	120.94W	21 52 06	269.93	10.13
February 11, 1965	20	250	158.79W	23 51 19	254.98	8.55
February 12, 1965	21	251	179.36E	01 50 33	256.38	5.45
"	21	252	149.51E	03 49 46	256.09	5.40
"	21	253	119.67E	05 49 00	255.78	5.36
"	21	254	089.32E	07 48 13	255.43	5.32
"	21	255	059.98E	09 47 26	254.98	5.27
February 12, 1965	21	256	030.13E	11 46 40	221.25	4.35

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TIROS IX OPERATIONAL ATTITUDE DATA

a DATE	b JULIAN DAY	c ORBIT NUMBER	d ASCENDING Longitude (Deg)	NODE Time (GMT) (Hr Min Sec)	e λ_o (Deg)	f ϵ_{max} (Deg)
February 12, 1965	21	257	000.29E	13 45 53	188.43	2.30
"	21	258	029.55W	15 45 07	185.01	1.99
"	21	259	059.39W	17 44 20	188.43	2.04
"	21	260	089.24W	19 43 34	191.65	2.10
"	21	261	119.08W	21 42 47	192.12	2.15
February 12, 1965	21	262	148.93W	23 42 01	192.68	2.16
February 13, 1965	22	263	178.77W	01 41 14	193.23	2.17
"	22	264	151.37E	03 40 28	193.78	2.17
"	22	265	121.53E	05 39 41	193.60	2.16
"	22	266	091.68E	07 38 55	193.41	2.16
"	22	267	061.84E	09 38 08	193.23	2.15
"	22	268	031.99E	11 37 21	193.04	2.15
"	22	269	002.15E	13 36 35	192.85	2.14
"	22	270	027.69W	15 35 48	192.67	2.14
"	22	271	057.53W	17 35 02	191.71	2.12
"	22	272	087.38W	19 34 15	146.42	0.55
"	22	273	117.22W	21 33 29	145.80	0.56
February 13, 1965	22	274	147.07W	23 32 42	145.18	0.56
February 14, 1965	23	275	176.91W	01 31 56	144.58	0.56
"	23	276	153.23E	03 31 09	143.98	0.57
"	23	277	123.39E	05 30 22	143.39	0.57
"	23	278	093.54E	07 29 36	142.81	0.58
"	23	279	063.70E	09 28 49	142.05	0.57
"	23	280	033.85E	11 28 03	141.28	0.57
"	23	281	004.01E	13 27 16	140.49	0.56
"	23	282	025.83W	15 26 29	139.69	0.56
"	23	283	055.67W	17 25 43	138.87	0.55
"	23	284	085.51W	19 24 56	138.04	0.54
"	23	285	115.36W	21 24 10	137.20	0.54
February 14, 1965	23	286	145.20W	23 23 23	136.33	0.53
February 15, 1965	24	287	175.05W	01 22 37	135.45	0.53
February 15, 1965	24	288	155.10E	03 21 50	134.55	0.53

TABLE A-2
TIROS IX OPERATIONAL ATTITUDE DATA

a DATE	b JULIAN DAY	c ORBIT NUMBER	d ASCENDING NODE Longitude (Deg)	e λ_o (Deg)	f ϵ_{max} (Deg)
February 15, 1965	24	289	125.25E	05 21 03	133.64 0.52
"	24	290	095.41E	07 20 17	132.48 0.52
"	24	291	065.56E	09 19 30	130.94 0.51
"	24	292	035.72E	11 18 44	129.37 0.50
"	24	293	005.87E	13 17 57	127.76 0.50
"	24	294	023.96W	15 17 10	126.13 0.50
"	24	295	053.81W	17 16 24	124.46 0.49
"	24	296	083.65W	19 15 37	122.77 0.49
"	24	297	113.49W	21 14 51	121.16 0.48
February 15, 1965	24	298	143.34W	23 14 04	123.34 0.46
February 16, 1965	25	299	173.29W	01 13 17	125.72 0.45
"	25	300	156.85E	03 12 31	128.31 0.43
"	25	301	127.01E	05 11 44	127.77 0.43
"	25	302	097.16E	07 10 57	127.26 0.44
"	25	303	067.31E	09 10 11	126.76 0.45
"	25	304	037.47E	11 09 24	126.27 0.46
"	25	305	007.62E	13 08 38	125.81 0.46
"	25	306	022.21W	15 07 51	125.36 0.47
"	25	307	052.06W	17 07 04	124.92 0.48
"	25	308	081.90W	19 06 18	124.49 0.48
"	25	309	111.75W	21 05 31	124.24 0.49
February 16, 1965	25	310	141.59W	23 04 44	124.18 0.49
February 17, 1965	26	311	171.44W	01 03 58	124.12 0.49
"	26	312	158.70E	03 03 11	124.07 0.50
"	26	313	128.86E	05 02 24	124.01 0.50
"	26	314	099.01E	07 01 38	123.95 0.50
"	26	315	069.17E	09 00 51	123.90 0.50
"	26	316	039.32E	11 00 04	123.85 0.51
"	26	317	009.48E	12 59 18	123.79 0.51
"	26	318	020.36W	14 58 31	123.74 0.51
"	26	319	050.20W	16 57 44	123.69 0.51
February 17, 1965	26	320	080.05W	18 56 57	123.63 0.52

TABLE A-2
TIROS IX OPERATIONAL ATTITUDE DATA

a DATE	b JULIAN DAY	c ORBIT NUMBER	d ASCENDING NODE		e λ_o (Deg)	f ϵ_{max} (Deg)
			Longitude (Deg)	Time (GMT) (Hr Min Sec)		
February 17, 1965	26	321	109.89W	20 56 11	123.69	0.52
February 17, 1965	26	322	139.74W	22 55 24	123.86	0.52
February 18, 1965	27	323	169.58W	00 54 38	123.88	0.52
"	27	324	160.56E	02 53 51	124.06	0.51
"	27	325	130.72E	04 53 05	124.24	0.51
"	27	326	100.87E	06 52 18	124.42	0.51
"	27	327	071.03E	08 51 31	124.60	0.51
"	27	328	041.18E	10 50 45	124.77	0.51
"	27	329	011.34E	12 49 58	124.96	0.50
"	27	330	018.50W	14 49 11	125.15	0.50
"	27	331	048.35W	16 48 25	125.33	0.50
"	27	332	078.19W	18 47 39	125.51	0.50
"	27	333	108.04W	20 46 51	125.63	0.49
February 18, 1965	27	334	137.88W	22 46 04	125.67	0.48
February 19, 1965	28	335	167.73W	00 45 18	125.71	0.47
"	28	336	162.42E	02 44 31	125.76	0.46
"	28	337	132.57E	04 43 44	125.80	0.45
"	28	338	102.73E	06 42 58	125.85	0.44
"	28	339	072.88E	08 42 11	125.90	0.43
"	28	340	043.04E	10 41 24	125.95	0.42
"	28	341	013.19E	12 40 38	126.00	0.41
"	28	342	016.64W	14 39 51	126.06	0.40
"	28	343	046.49W	16 39 04	126.11	0.39
"	28	344	076.33W	18 38 17	126.18	0.38
"	28	345	106.18W	20 37 31	126.63	0.37
February 19, 1965	28	346	136.02W	22 36 44	127.49	0.37
February 20, 1965	29	347	165.87W	00 35 57	128.39	0.36
"	29	348	164.28E	02 35 11	129.33	0.35
"	29	349	134.43E	04 34 24	130.28	0.35
"	29	350	104.59E	06 33 37	131.28	0.34
"	29	351	074.74E	08 32 50	132.32	0.33
February 20, 1965	29	352	044.90E	10 32 04	133.39	0.33

TABLE A-2
TIROS IX OPERATIONAL ATTITUDE DATA

a DATE	b JULIAN DAY	c ORBIT NUMBER	d ASCENDING NODE Longitude (Deg)	e λ_o (Deg)	f ϵ_{max} (Deg)
February 20, 1965	29	353	015.05E	12 31 17	134.52 0.32
"	29	354	014.78W	14 30 30	135.66 0.32
"	29	355	044.63W	16 29 43	136.87 0.31
"	29	356	074.47W	18 28 57	138.13 0.30
"	29	357	104.32W	20 28 10	139.30 0.29
February 20, 1965	29	358	134.16W	22 27 23	140.81 0.29
February 21, 1965	30	359	164.01W	00 26 36	142.42 0.28
"	30	360	166.14E	02 25 50	144.15 0.27
"	30	361	136.29E	04 25 03	145.99 0.26
"	30	362	106.45E	06 24 16	147.98 0.25
"	30	363	076.60E	08 23 29	150.10 0.24
"	30	364	046.76E	10 22 43	152.34 0.23
"	30	365	016.91E	12 21 56	154.76 0.23
"	30	366	012.92W	14 21 09	157.35 0.22
"	30	367	042.77W	16 20 22	160.08 0.21
"	30	368	072.61W	18 19 35	163.01 0.21
"	30	369	102.46W	20 18 49	166.07 0.20
February 21, 1965	30	370	132.30W	22 18 02	169.32 0.20
February 22, 1965	31	371	162.15W	00 17 15	173.48 0.19
"	31	372	168.00E	02 16 28	203.70 0.18
"	31	373	138.15E	04 15 42	229.87 0.22
"	31	374	108.31E	06 14 55	239.88 0.28
"	31	375	078.46E	08 14 08	246.21 0.34
"	31	376	048.62E	10 13 21	250.47 0.41
"	31	377	018.77E	12 12 34	253.49 0.48
"	31	378	011.06W	14 11 48	255.75 0.55
"	31	379	040.91W	16 11 01	257.49 0.62
"	31	380	070.75W	18 10 14	258.87 0.69
"	31	381	100.60W	20 09 27	259.99 0.76
February 22, 1965	31	382	130.44W	22 08 40	260.87 0.84
February 23, 1965	32	383	160.18W	00 07 54	261.60 0.92
February 23, 1965	32	384	169.96E	02 07 07	262.22 0.99

TABLE A-2
TIROS IX OPERATIONAL ATTITUDE DATA

a DATE	b JULIAN DAY	c ORBIT NUMBER	d ASCENDING NODE		e λ_o (Deg)	f ϵ_{max} (Deg)
			Longitude (Deg)	Time (GMT) (Hr Min Sec)		
February 23, 1965	32	385	140.12E	04 06 20	262.75	1.07
	"	386	110.28E	06 05 33	263.21	1.14
	"	387	080.43E	08 04 46	263.61	1.22
	"	388	058.59E	10 03 59	263.97	1.30
	"	389	020.74E	12 03 13	264.28	1.37
	"	390	009.09W	14 02 26	264.56	1.45
	"	391	038.93W	16 01 39	264.81	1.53
	"	392	068.78W	18 00 52	265.04	1.60
	"	393	098.62W	20 00 05	265.25	1.68
	"	394	128.47W	21 59 18	265.42	1.76
February 23, 1965	32	395	158.31W	23 58 32	265.55	1.83
February 24, 1965	33	396	171.84E	01 57 45	265.67	1.91
	"	397	141.99E	03 56 58	265.77	1.98
	"	398	112.15E	05 56 11	265.87	2.05
	"	399	082.30E	07 55 24	265.97	2.13
	"	400	052.46E	09 54 37	266.06	2.20
	"	401	022.62E	11 53 50	266.14	2.28
	"	402	007.22W	13 53 03	266.22	2.35
	"	403	037.06W	15 52 16	266.29	2.43
	"	404	066.90W	17 51 30	266.35	2.50
	"	405	096.75W	19 50 43	266.42	2.58
	"	406	126.59W	21 49 56	266.42	2.65
February 24, 1965	33	407	156.43W	23 49 09	266.37	2.73
February 25, 1965	34	408	173.71E	01 48 22	266.32	2.81
	"	409	143.07E	03 47 35	266.27	2.89
	"	410	114.02E	05 46 48	266.22	2.97
	"	411	084.18E	07 46 01	266.18	3.04
	"	412	054.34E	09 45 14	266.14	3.12
	"	413	024.50E	11 44 27	266.10	3.20
	"	414	005.34W	13 43 41	266.06	3.28
	"	415	035.18W	15 42 54	266.03	3.35
February 25, 1965	34	416	065.03W	17 42 07	265.99	3.43

TABLE A-2
TIROS IX OPERATIONAL ATTITUDE DATA

a DATE	b JULIAN DAY	c ORBIT NUMBER	d ASCENDING NODE		e λ_O (Deg)	f ϕ_{max} (Deg)
			Longitude (Deg)	Time (GMT) (Hr Min Sec)		
February 25, 1965	34	41 7	094. 87W	19 41 20	265. 96	3. 51
"	34	41 8	124. 71W	21 40 33	265. 93	3. 59
February 25, 1965	34	41 9	154. 56W	23 39 46	265. 89	3. 66
February 26, 1965	35	420	175. 59E	01 38 59	265. 86	3. 74
"	35	421	145. 75E	03 38 12	265. 84	3. 82
"	35	422	115. 90E	05 37 25	265. 82	3. 90
"	35	423	086. 06E	07 36 38	265. 91	4. 00
"	35	424	056. 22E	09 35 51	265. 80	4. 05
"	35	425	026. 37E	11 35 04	265. 70	4. 10
"	35	426	003. 46W	13 34 17	265. 61	4. 14
"	35	427	033. 30W	15 33 30	265. 51	4. 19
"	35	428	063. 15W	17 32 43	265. 42	4. 24
"	35	429	092. 99W	19 31 56	265. 32	4. 29
"	35	430	122. 83W	21 31 09	265. 24	4. 34
February 26, 1965	35	431	152. 68W	23 30 22	265. 15	4. 38
February 27, 1965	36	432	177. 47E	01 29 36	265. 07	4. 42
"	36	433	147. 63E	03 28 49	264. 99	4. 46
"	36	434	117. 78E	05 28 02	264. 91	4. 50
"	36	435	087. 94E	07 27 15	264. 84	4. 54
"	36	436	058. 10E	09 26 28	264. 76	4. 58
"	36	437	028. 25E	11 25 41	264. 69	4. 62
"	36	438	001. 58W	13 24 54	264. 61	4. 67
"	36	439	031. 42W	15 24 07	264. 54	4. 71
"	36	440	061. 27W	17 23 20	264. 47	4. 75
"	36	441	091. 11W	19 22 33	264. 40	4. 79
"	36	442	120. 95W	21 21 46	264. 35	4. 83
February 27, 1965	36	443	150. 80W	23 20 59	264. 30	4. 88
February 28, 1965	37	444	179. 35E	01 20 12	264. 27	4. 92
"	37	445	149. 51E	03 19 25	264. 23	4. 97
"	37	446	119. 67E	05 18 38	264. 19	5. 01
"	37	447	089. 82E	07 17 51	264. 15	5. 06
February 28, 1965	37	448	059. 98E	09 17 04	264. 11	5. 10

TABLE A-2
 TIROS IX OPERATIONAL ATTITUDE DATA

a DATE	b JULIAN DAY	c ORBIT NUMBER	d ASCENDING NODE Longitude (Deg)	d Time (GMT) (Hr Min Sec)	e λ_o (Deg)	f c_{max} (Deg)
February 28, 1965	37	449	030.14E	11 16 17	264.08	5.15
"	37	450	000.29E	13 15 30	264.04	5.19
"	37	451	029.54W	15 14 43	264.01	5.24
"	37	452	059.38W	17 13 56	263.97	5.28
"	37	453	089.23W	19 13 08	263.94	5.33
"	37	454	119.07W	21 12 21	263.94	5.37
February 28, 1965	37	455	148.91W	23 11 34	264.11	5.40
March 1, 1965	38	456	178.76W	01 10 47	264.28	5.44
"	38	457	151.39E	03 10 00	264.45	5.48
"	38	458	121.55E	05 09 13	264.62	5.51
"	38	459	091.71E	07 08 26	264.78	5.55
"	38	460	061.86E	09 07 39	264.94	5.59
"	38	461	032.02E	11 06 52	265.10	5.62
"	38	462	002.18E	13 06 05	265.26	5.65
"	38	463	027.66W	15 05 18	265.42	5.70
"	38	464	057.50W	17 04 31	265.57	5.73
"	38	465	087.34W	19 03 44	265.72	5.77
"	38	466	117.18W	21 02 57	265.68	5.81
March 1, 1965	38	467	147.03W	23 02 10	265.44	5.86
March 2, 1965	39	468	176.91W	01 01 23	265.21	5.90
"	39	469	153.24E	03 00 36	264.98	5.95
"	39	470	123.39E	04 59 49	264.75	5.99
"	39	471	093.55E	06 59 02	264.53	6.04
"	39	472	063.71E	08 58 14	264.31	6.09
"	39	473	033.86E	10 57 27	264.09	6.13
"	39	474	004.02E	12 56 40	263.88	6.18
"	39	475	025.81W	14 55 53	263.67	6.22
"	39	476	055.66W	16 55 06	263.46	6.27
"	39	477	085.50W	18 54 19	263.26	6.32
"	39	478	115.34W	20 53 32	263.11	6.36
March 2, 1965	39	479	145.18W	22 52 45	263.03	6.41
March 3, 1965	40	480	175.03W	00 51 58	262.95	6.46

TABLE A-2
TIROS IX OPERATIONAL ATTITUDE DATA

a DATE	b JULIAN DAY	c ORBIT NUMBER	d ASCENDING NODE Longitude (Deg)	e λ_o (Deg)	f ϕ_{max} (Deg)
March 3, 1965	40	481	155.12E	02 51 11	262.87 6.51
"	40	482	125.28E	04 50 23	262.78 6.55
"	40	483	095.43E	06 49 36	262.70 6.60
"	40	484	065.59E	08 48 49	262.63 6.65
"	40	485	035.75E	10 48 02	262.55 6.70
"	40	486	005.90E	12 47 15	262.47 6.74
"	40	487	023.93W	14 46 28	262.40 6.79
"	40	488	053.77W	16 45 41	262.32 6.84
"	40	489	083.62W	18 44 54	262.25 6.89
"	40	490	113.46W	20 44 06	262.18 6.93
March 3, 1965	40	491	143.30W	22 43 19	262.11 6.98
March 4, 1965	41	492	173.15W	00 42 32	262.04 7.02
"	41	493	157.00E	02 41 45	261.98 7.06
"	41	494	127.16E	04 40 58	261.91 7.10
"	41	495	097.32E	06 40 11	261.85 7.15
"	41	496	067.47E	08 39 24	261.78 7.19
"	41	497	037.63E	10 38 36	261.72 7.23
"	41	498	007.79E	12 37 49	261.66 7.28
"	41	499	022.05W	14 37 02	261.59 7.32
"	41	500	051.89W	16 36 15	261.53 7.36
"	41	501	081.73W	18 35 28	261.47 7.40
"	41	502	111.58W	20 34 41	261.36 7.44
March 4, 1965	41	503	141.42W	22 33 53	261.20 7.47
March 5, 1965	42	504	171.26W	00 33 06	261.04 7.50
"	42	505	158.89E	02 32 19	260.87 7.54
"	42	506	129.04E	04 31 32	260.72 7.57
"	42	507	099.20E	06 30 45	260.56 7.60
"	42	508	069.36E	08 29 58	260.40 7.63
"	42	509	039.52E	10 29 11	260.24 7.66
"	42	510	009.67E	12 28 24	260.09 7.69
"	42	511	020.16W	14 27 36	259.94 7.73
March 5, 1965	42	512	050.00W	16 26 49	259.78 7.76

TABLE A-2
TIROS IX OPERATIONAL ATTITUDE DATA

a DATE	b JULIAN DAY	c ORBIT NUMBER	d ASCENDING NODE Longitude (Deg)	d Time (GMT) (Hr Min Sec)	e λ_o (Deg)	f ϵ_{max} (Deg)
March 5, 1965	42	513	079.85W	18 26 02	259.63	7.79
"	42	514	109.69W	20 25 15	259.49	7.82
March 5, 1965	42	515	139.53W	22 24 28	259.34	7.85
March 6, 1965	43	516	169.37W	00 23 40	259.20	7.88
"	43	517	160.77E	02 22 53	259.06	7.91
"	43	518	130.93E	04 22 06	258.92	7.93
"	43	519	101.09E	06 21 19	253.0	8.10
"	43	520	071.25E	08 20 32	253.1	8.15
"	43	521	041.40E	10 19 45	253.2	8.20
"	43	522	011.56E	12 18 57	253.2	8.25
"	43	523	018.27W	14 18 10	253.3	8.25
"	43	524	048.12W	16 17 23	253.3	8.30
"	43	525	077.96W	18 16 36	253.4	8.35
"	43	526	107.80W	20 15 49	253.4	8.40
March 6, 1965	43	527	137.64W	22 15 01	253.5	8.40
March 7, 1965	44	528	167.49W	00 14 14	253.5	8.45
"	44	529	162.66E	02 13 27	253.5	8.50
"	44	530	132.82E	04 12 40	253.6	8.55
"	44	531	102.97E	06 11 52	253.7	8.60
"	44	532	073.13E	08 11 05	253.8	8.65
"	44	533	043.29E	10 10 18	253.9	8.65
"	44	534	013.45E	12 09 31	254.0	8.70
"	44	535	016.39W	14 08 44	254.0	8.75
"	44	536	046.23W	16 07 56	254.1	8.80
"	44	537	076.07W	18 07 09	254.1	8.80
"	44	538	105.91W	20 06 22	254.2	8.85
March 7, 1965	44	539	135.76W	22 05 35	254.3	8.90
March 8, 1965	45	540	165.60W	00 04 47	254.4	8.95
"	45	541	164.55E	02 04 00	254.5	8.95
"	45	542	134.71E	04 03 13	254.5	9.00
"	45	543	104.86E	06 02 26	254.6	9.05
March 8, 1965	45	544	075.02E	08 01 38	254.7	9.10

TABLE A-2
TIROS IX OPERATIONAL ATTITUDE DATA

a DATE	b JULIAN DAY	c ORBIT NUMBER	d ASCENDING NODE Longitude (Deg)	e λ_o (Deg)	f ϕ_{max} (Deg)
March 8, 1965	45	545	045.18E	254.8	9.15
"	45	546	015.34E	254.8	9.15
"	45	547	014.50W	254.9	9.20
"	45	548	044.34W	254.9	9.25
"	45	549	074.18W	255.0	9.30
"	45	550	104.02W	255.0	9.35
"	45	551	133.87W	255.0	9.35
March 8, 1965	45	552	163.71W	255.1	9.40
March 9, 1965	46	553	166.45E	255.2	9.45
"	46	554	136.61E	255.2	9.50
"	46	555	106.76E	255.3	9.55
"	46	556	076.92E	255.3	9.55
"	46	557	047.08E	255.4	9.60
"	46	558	017.24E	255.4	9.65
"	46	559	012.60W	255.5	9.70
"	46	560	042.44W	255.5	9.70
"	46	561	072.28W	255.5	9.75
"	46	562	102.12W	255.5	9.80
"	46	563	131.96W	255.5	9.85
March 9, 1965	46	564	161.81W	255.5	9.90
March 10, 1965	47	565	168.34E	255.5	9.90
"	47	566	138.50E	255.5	9.95
"	47	567	108.66E	255.5	10.00
"	47	568	078.81E	255.4	10.00
"	47	569	048.97E	255.4	10.05
"	47	570	019.13E	255.4	10.10
"	47	571	010.70W	255.3	10.15
"	47	572	040.54W	255.3	10.15
"	47	573	070.39W	255.3	10.20
"	47	574	100.23W	255.2	10.25
"	47	575	130.07W	255.2	10.25
March 10, 1965	47	576	159.91W	255.1	10.30

TABLE A-2
TIROS IX OPERATIONAL ATTITUDE DATA

a DATE	b JULIAN DAY	c ORBIT NUMBER	d ASCENDING NODE		e λ_o (Deg)	f ϵ_{max} (Deg)
			Longitude (Deg)	Time (GMT) (Hr Min Sec)		
March 11, 1965	48	577	170.24E	01 35 38	255.0	10.35
	"	578	140.39E	03 34 51	255.0	10.40
	"	579	110.55E	05 34 03	255.0	10.45
	"	580	080.71E	07 33 16	255.1	10.45
	"	581	050.87E	09 32 29	255.1	10.50
	"	582	021.03E	11 31 41	255.2	10.55
	"	583	008.81W	13 30 54	255.2	10.55
	"	584	038.65W	15 30 07	255.3	10.60
	"	585	068.49W	17 29 19	255.3	10.65
	"	586	098.33W	19 28 32	255.3	10.65
	"	587	128.17W	21 27 45	255.4	10.70
March 11, 1965	48	588	158.02W	23 26 57	255.4	10.75
March 12, 1965	49	589	172.13E	01 26 10	255.5	10.80
	"	590	142.29E	03 25 22	255.5	10.80
	"	591	112.45E	05 24 35	255.5	10.85
	"	592	082.61E	07 23 48	255.4	10.90
	"	593	052.76E	09 23 00	255.4	10.95
	"	594	022.92E	11 22 13	255.3	10.95
	"	595	006.91W	13 21 26	255.3	11.00
	"	596	036.75W	15 20 38	255.2	11.05
	"	597	066.59W	17 19 51	255.2	11.10
	"	598	096.43W	19 19 03	255.1	11.10
	"	599	126.28W	21 18 16	255.1	11.15
March 12, 1965	49	600	156.12W	23 17 29	254.0	11.20
March 13, 1965	50	601	174.03E	01 16 41	254.0	11.25
	"	602	144.19E	03 15 54	253.9	11.25
	"	603	114.35E	05 15 06	253.9	11.30
	"	604	084.50E	07 14 19	253.8	11.35
	"	605	054.66E	09 13 32	253.8	11.40
	"	606	024.82E	11 12 44	253.7	11.45
	"	607	005.01W	13 11 57	253.7	11.50
March 13, 1965	50	608	034.85W	15 11 09	253.6	11.55

TABLE A-2
TIROS IX OPERATIONAL ATTITUDE DATA

a DATE	b JULIAN DAY	c ORBIT NUMBER	d ASCENDING NODE Longitude (Deg)	e λ_o (Deg)	f ϕ_{max} (Deg)
March 13, 1965	50	609	064.70W	17 10 22	253.6 11.55
"	50	610	094.54W	19 09 34	253.6 11.60
"	50	611	124.38W	21 08 47	253.5 11.65
March 13, 1965	50	612	154.22W	23 08 00	253.5 11.70
March 14, 1965	51	613	175.93E	01 07 12	253.5 11.70
"	51	614	146.09E	03 06 25	253.4 11.75
"	51	615	116.24E	05 05 37	253.4 11.80
"	51	616	086.40E	07 04 50	253.4 11.85
"	51	617	056.56E	09 04 02	253.3 11.90
"	51	618	026.72E	11 03 15	253.3 11.90
"	51	619	003.11W	13 02 28	253.2 11.95
"	51	620	032.95W	15 01 40	253.2 12.00
"	51	621	062.80W	17 00 53	253.1 12.05
"	51	622	092.64W	19 00 05	253.1 12.10
"	51	623	122.48W	20 59 18	253.0 12.10
March 14, 1965	51	624	152.32W	22 58 30	253.0 12.15
March 15, 1965	52	625	177.83E	00 57 43	253.0 12.20
"	52	626	147.99E	02 56 55	253.0 12.25
"	52	627	118.14E	04 56 08	252.9 12.30
"	52	628	088.30E	06 55 21	252.9 12.35
"	52	629	058.46E	08 54 33	252.8 12.35
"	52	630	028.62E	10 53 45	252.8 12.40
"	52	631	001.21W	12 52 58	252.7 12.45
"	52	632	031.05W	14 52 10	252.7 12.50
"	52	633	060.90W	16 51 23	252.7 12.50
"	52	634	090.74W	18 50 35	252.6 12.55
"	52	635	120.58W	20 49 48	252.6 12.60
March 15, 1965	52	636	150.42W	22 49 01	252.5 12.65
March 16, 1965	53	637	179.77E	00 48 13	252.5 12.70
"	53	638	149.93E	02 47 26	252.5 12.75
"	53	639	120.09E	04 46 38	252.4 12.75
March 16, 1965	53	640	090.25E	06 45 50	252.4 12.80

TABLE A-2
TIROS IX OPERATIONAL ATTITUDE DATA

a DATE	b JULIAN DAY	c ORBIT NUMBER	d ASCENDING NODE Longitude (Deg)	e λ_o (Deg)	f ϕ_{max} (Deg)
March 16, 1965	53	641	060.41E	08 45 03	252.4 12.85
"	53	642	030.56E	10 44 15	252.3 12.90
"	53	643	000.72E	12 43 28	252.3 12.95
"	53	644	029.11W	14 42 40	252.2 12.95
"	53	645	058.95W	16 41 53	252.2 13.00
"	53	646	088.79W	18 41 05	252.1 13.05
"	53	647	118.63W	20 40 18	252.1 13.10
March 16, 1965	53	648	148.47W	22 39 30	252.0 13.15
March 17, 1965	54	649	178.32W	00 38 43	252.0 13.15
"	54	650	151.83E	02 37 55	252.0 13.20
"	54	651	121.99E	04 37 08	251.9 13.25
"	54	652	092.15E	06 36 20	251.9 13.30
"	54	653	062.31E	08 35 33	251.9 13.35
"	54	654	032.47E	10 34 45	251.8 13.35
"	54	655	002.63E	12 33 58	251.8 13.40
"	54	656	027.20W	14 33 10	251.8 13.45
"	54	657	057.04W	16 32 23	251.7 13.50
"	54	658	086.88W	18 31 35	251.7 13.55
"	54	659	116.73W	20 30 48	251.6 13.60
March 17, 1965	54	660	146.57W	22 30 00	251.6 13.60
March 18, 1965	55	661	176.41W	00 29 13	251.6 13.65
"	55	662	153.74E	02 28 25	251.5 13.70
"	55	663	123.90E	04 27 38	251.5 13.70
"	55	664	094.06E	06 26 50	251.5 13.75
"	55	665	064.22E	08 26 02	251.5 13.80
"	55	666	034.38E	10 25 15	251.5 13.85
"	55	667	004.54E	12 24 27	251.4 13.90
"	55	668	025.29W	14 23 40	251.4 13.90
"	55	669	055.14W	16 22 52	251.4 13.95
"	55	670	084.98W	18 22 05	251.4 14.00
"	55	671	114.82W	20 21 17	251.3 14.05
March 18, 1965	55	672	144.66W	22 20 30	251.3 14.10

TABLE A-2
TIROS IX OPERATIONAL ATTITUDE DATA

a DATE	b JULIAN DAY	c ORBIT NUMBER	d ASCENDING NODE (Deg)	e λ_o (Deg)	f ϕ_{max} (Deg)
March 19, 1965	56	673	174.50W	00 19 42	251.3
"	56	674	155.65E	02 18 54	251.2
"	56	675	125.81E	04 18 07	251.2
"	56	676	095.97E	06 17 19	251.2
"	56	677	066.13E	08 16 32	251.1
"	56	678	036.29E	10 15 44	251.1
"	56	679	006.45E	12 14 57	251.0
"	56	680	023.39W	14 14 09	251.0
"	56	681	053.23W	16 13 21	251.0
"	56	682	083.07W	18 12 34	251.0
"	56	683	112.91W	20 11 46	250.9
March 19, 1965	56	684	142.75W	22 10 59	250.9
March 20, 1965	57	685	172.59W	00 10 11	250.9
"	57	686	157.56E	02 09 24	250.8
"	57	687	127.72E	04 08 36	250.8
"	57	688	097.88E	06 07 48	250.7
"	57	689	068.04E	08 07 01	250.7
"	57	690	038.20E	10 06 13	250.7
"	57	691	008.36E	12 05 26	250.6
"	57	692	021.48W	14 04 38	250.6
"	57	693	051.32W	16 03 50	250.5
"	57	694	081.16W	18 03 03	250.5
"	57	695	111.00W	20 02 15	250.5
March 20, 1965	57	696	140.84W	22 01 28	250.5
March 21, 1965	58	697	170.68W	00 00 40	250.4
"	58	698	159.47E	01 59 52	250.4
"	58	699	129.63E	03 59 05	250.3
"	58	700	099.79E	05 58 17	250.3
"	58	701	069.95E	07 57 30	250.2
"	58	702	040.11E	09 56 42	250.2
"	58	703	010.27E	11 55 54	250.1
March 21, 1965	58	704	019.56W	13 55 07	250.1

TABLE A-2
TIROS IX OPERATIONAL ATTITUDE DATA

a DATE	b JULIAN DAY	c ORBIT NUMBER	d ASCENDING NODE Longitude (Deg)	e λ_o (Deg)	f ϵ_{max} (Deg)
		Time (GMT) (Hr Min Sec)			
March 21, 1965	58	705	049.40W	15 54 19	250.0 15.45
"	58	706	079.24W	17 53 32	250.0 15.45
"	58	707	109.08W	19 52 44	250.0 15.45
"	58	708	138.93W	21 51 56	250.0 15.45
March 21, 1965	58	709	168.77W	23 51 09	250.0 15.45
March 22, 1965	59	710	161.38E	01 50 21	249.9 15.6
"	59	711	131.54E	03 49 33	249.9 15.6
"	59	712	101.70E	05 48 46	249.9 15.6
"	59	713	071.86E	07 47 58	249.9 15.7
"	59	714	042.02E	09 47 11	249.8 15.7
"	59	715	012.18E	11 46 23	249.8 15.7
"	59	716	017.65W	13 45 35	249.8 15.8
"	59	717	047.49W	15 44 48	249.8 15.8
"	59	718	077.33W	17 44 00	249.8 15.8
"	59	719	107.17W	19 43 12	249.7 15.9
"	59	720	137.01W	21 42 25	249.7 15.9
March 22, 1965	59	721	166.85W	23 41 37	249.7 16.0
March 23, 1965	60	722	163.24E	01 40 50	249.7 16.1
"	60	723	133.40E	03 40 02	249.7 16.1
"	60	724	103.56E	05 39 14	249.7 16.1
"	60	725	073.72E	07 38 27	249.6 16.2
"	60	726	043.88E	09 37 39	249.6 16.2
"	60	727	014.04E	11 36 51	249.6 16.3
"	60	728	015.79W	13 36 04	249.6 16.3
"	60	729	045.63W	15 35 16	249.6 16.4
"	60	730	075.47W	17 34 28	249.5 16.4
"	60	731	105.32W	19 33 41	249.5 16.4
"	60	732	135.15W	21 32 53	249.5 16.5
March 23, 1965	60	733	165.00W	23 32 05	249.5 16.5
March 24, 1965	61	734	165.15E	01 31 18	249.5 16.5
"	61	735	135.31E	03 30 30	249.5 16.6
March 24, 1965	61	736	105.47E	05 29 43	249.4 16.6

TABLE A-2
TIROS IX OPERATIONAL ATTITUDE DATA

a DATE	b JULIAN DAY	c ORBIT NUMBER	d ASCENDING NODE Longitude (Deg)	e λ_o (Deg)	f ϕ_{max} (Deg)
March 24, 1965	61	737	075.63E	07 28 55	249.4 16.6
"	61	738	045.79E	09 28 07	249.4 16.7
"	61	739	015.95E	11 27 20	249.3 16.7
"	61	740	013.88W	13 26 32	249.3 16.8
"	61	741	043.72W	15 25 44	249.3 16.8
"	61	742	073.56W	17 24 57	249.2 16.8
"	61	743	103.40W	19 24 09	249.2 16.9
"	61	744	133.25W	21 23 21	249.1 16.9
March 24, 1965	61	745	163.09W	23 22 34	249.1 16.9
March 25, 1965	62	746	167.06E	01 21 46	249.0 17.0
"	62	747	137.22E	03 20 58	249.0 17.0
"	62	748	107.38E	05 20 11	249.0 17.0
"	62	749	077.54E	07 19 23	249.0 17.1
"	62	750	047.70E	09 18 35	248.9 17.1
"	62	751	017.86E	11 17 48	248.9 17.2
"	62	752	011.97W	13 17 00	248.9 17.2
"	62	753	041.81W	15 16 12	248.8 17.3
"	62	754	071.65W	17 15 24	248.8 17.3
"	62	755	101.49W	19 14 37	248.8 17.4
"	62	756	131.33W	21 13 49	248.7 17.4
March 25, 1965	62	757	161.18W	23 13 01	248.7 17.4
March 26, 1965	63	758	168.98E	01 12 14	248.7 17.5
"	63	759	139.13E	03 11 26	248.6 17.5
"	63	760	109.29E	05 10 38	248.6 17.5
"	63	761	079.45E	07 09 51	248.6 17.6
"	63	762	049.61E	09 09 03	248.6 17.6
"	63	763	019.77E	11 08 15	248.5 17.7
"	63	764	010.06W	13 07 28	248.5 17.7
"	63	765	039.90W	15 06 40	248.5 17.8
"	63	766	069.74W	17 05 52	248.5 17.8
"	63	767	099.58W	19 05 04	248.5 17.8
March 26, 1965	63	768	129.42W	21 04 17	248.5 17.9

TABLE A-2
TIROS IX OPERATIONAL ATTITUDE DATA

a DATE	b JULIAN DAY	c ORBIT NUMBER	d ASCENDING NODE Longitude (Deg)	e λ_o (Deg)	f ϕ_{max} (Deg)
March 26, 1965	63	769	159.26W	23 03 29	255.0 20.6
March 27, 1965	64	770	170.89E	01 02 41	255.0 20.6
"	64	771	141.05E	03 01 54	255.0 20.6
"	64	772	111.21E	05 01 06	255.0 20.7
"	64	773	081.36E	07 00 18	255.0 20.7
"	64	774	051.52E	08 59 30	255.0 20.7
"	64	775	021.68E	10 58 43	255.0 20.8
"	64	776	008.15W	12 57 55	255.0 20.8
"	64	777	037.99W	14 57 07	255.0 20.8
"	64	778	067.83W	16 56 19	255.0 20.9
"	64	779	097.67W	18 55 32	255.0 20.9
"	64	780	127.51W	20 54 44	255.0 21.0
March 27, 1965	64	781	157.35W	22 53 56	255.0 21.0
March 28, 1965	65	782	172.80E	00 53 09	255.0 21.1
"	65	783	142.96E	02 52 21	255.0 21.1
"	65	784	113.12E	04 51 33	255.0 21.2
"	65	785	083.28E	06 50 45	255.0 21.2
"	65	786	053.44E	08 49 57	255.0 21.2
"	65	787	023.60E	10 49 10	255.0 21.3
"	65	788	006.23W	12 48 22	255.0 21.3
"	65	789	036.07W	14 47 34	255.0 21.4
"	65	790	065.92W	16 46 46	255.0 21.4
"	65	791	095.76W	18 45 59	255.0 21.4
"	65	792	125.60W	20 45 11	255.0 21.5
March 28, 1965	65	793	155.44W	22 44 23	255.0 21.5
March 29, 1965	66	794	174.71E	00 43 35	255.0 21.5
"	66	795	144.87E	02 42 48	255.0 21.6
"	66	796	115.03E	04 42 00	255.0 21.6
"	66	797	085.19E	06 41 12	255.0 21.7
"	66	798	055.35E	08 40 24	255.0 21.7
"	66	799	025.51E	10 39 37	254.9 21.8
March 29, 1965	66	800	004.32W	12 38 49	254.9 21.8

TABLE A-2
TIROS IX OPERATIONAL ATTITUDE DATA

a DATE	b JULIAN DAY	c ORBIT NUMBER	d ASCENDING NODE Longitude (Deg)	e λ_o (Deg)	f ϕ_{max} (Deg)
March 29, 1965	66	801	034.16W	254.9	21.8
"	66	802	064.00W	254.9	21.9
"	66	803	093.84W	254.8	21.9
"	66	804	123.68W	254.8	22.0
March 29, 1965	66	805	153.52W	254.8	22.1
March 30, 1965	67	806	176.73E	254.8	22.1
"	67	807	146.89E	254.7	22.1
"	67	808	117.05E	254.7	22.2
"	67	809	087.22E	254.7	22.2
"	67	810	057.37E	254.7	22.3
"	67	811	027.53E	254.6	22.3
"	67	812	002.29W	254.6	22.3
"	67	813	032.13W	254.6	22.4
"	67	814	061.97W	254.6	22.4
"	67	815	091.81W	254.5	22.5
"	67	816	121.65W	254.5	22.5
March 30, 1965	67	817	151.49W	254.5	22.6
March 31, 1965	68	818	178.66E	254.5	22.6
"	68	819	148.82E	254.5	22.6
"	68	820	118.98E	254.5	22.7
"	68	821	089.14E	254.4	22.7
"	68	822	059.30E	254.4	22.8
"	68	823	029.46E	254.4	22.8
"	68	824	000.37W	254.4	22.9
"	68	825	030.21W	254.4	22.9
"	68	826	060.05W	254.3	22.9
"	68	827	089.89W	254.3	23.0
"	68	828	119.73W	254.3	23.0
March 31, 1965	68	829	149.57W	254.3	23.1
April 1, 1965	69	830	179.41W	254.2	23.1
"	69	831	150.74E	254.2	23.2
April 1, 1965	69	832	120.90E	254.2	23.2

TABLE A-2
TIROS IX OPERATIONAL ATTITUDE DATA

a DATE	b JULIAN DAY	c ORBIT NUMBER	d ASCENDING NODE Longitude (Deg)	d ASCENDING NODE Time (GMT) (Hr Min Sec)	e λ_o (Deg)	f ϵ_{max} (Deg)
April 1, 1965	69	833	091.07E	06 12 31	254.2	23.3
	"	834	061.22E	08 11 43	254.1	23.3
	"	835	031.39E	10 10 56	254.1	23.4
	"	836	001.55E	12 10 08	254.1	23.4
	"	837	028.28W	14 09 20	254.1	23.5
	"	838	058.12W	16 08 32	254.1	23.5
	"	839	087.96W	18 07 44	254.0	23.5
	"	840	117.80W	20 06 56	254.0	23.6
April 1, 1965	69	841	147.64W	22 06 09	254.0	23.6
April 2, 1965	70	842	177.48W	00 05 21	254.0	23.7
	"	843	152.67E	02 04 33	254.0	23.7
	"	844	122.83E	04 03 45	254.0	23.8
	"	845	092.99E	06 02 57	253.9	23.8
	"	846	063.15E	08 02 09	253.9	23.9
	"	847	033.31E	10 01 22	253.9	23.9
	"	848	003.47E	12 00 34	253.8	23.9
	"	849	026.36W	13 59 46	253.8	23.9
	"	850	056.20W	15 58 58	253.8	24.0
	"	851	086.04W	17 58 10	253.8	24.1
	"	852	115.88W	19 57 22	253.7	24.1
	"	853	145.71W	21 56 34	253.7	24.2
April 2, 1965	70	854	175.55W	23 55 47	253.7	24.2
April 3, 1965	71	855	154.60E	01 54 59	253.7	24.2
	"	856	124.76E	03 54 11	253.6	24.3
	"	857	094.92E	05 53 23	253.6	24.3
	"	858	065.08E	07 52 35	253.6	24.4
	"	859	035.24E	09 51 47	253.5	24.4
	"	860	005.40E	11 50 59	253.5	24.5
	"	861	024.43W	13 50 12	253.5	24.5
	"	862	054.27W	15 49 24	253.5	24.6
	"	863	084.11W	17 48 36	253.5	24.6
	April 3, 1965	71	864	113.95W	19 47 48	253.4

TABLE A-2
TIROS IX OPERATIONAL ATTITUDE DATA

a DATE	b JULIAN DAY	c ORBIT NUMBER	d ASCENDING NODE Longitude (Deg)	e λ_o (Deg)	f ϕ_{max} (Deg)
April 3, 1965	71	865	143.79W	21 47 00	253.4 24.7
April 3, 1965	71	866	173.63W	23 46 12	253.4 24.7
April 4, 1965	72	867	156.52E	01 45 25	253.4 24.8
"	72	868	126.68E	03 44 37	253.4 24.8
"	72	869	096.85E	05 43 49	253.3 24.8
"	72	870	067.01E	07 43 01	253.3 24.9
"	72	871	037.17E	09 42 13	253.3 24.9
"	72	872	007.33E	11 41 25	253.2 25.0
"	72	873	022.50W	13 40 37	253.2 25.1
"	72	874	052.34W	15 39 49	253.2 25.1
"	72	875	082.18W	17 39 02	253.2 25.2
"	72	876	112.02W	19 38 14	253.1 25.2
"	72	877	141.86W	21 37 26	253.1 25.2
April 4, 1965	72	878	171.70W	23 36 38	253.1 25.3
April 5, 1965	73	879	158.45E	01 35 50	253.0 25.3
"	73	880	128.62E	03 35 02	253.0 25.3
"	73	881	098.78E	05 34 14	253.0 25.4
"	73	882	068.94E	07 33 26	253.0 25.4
"	73	883	039.10E	09 32 38	253.0 25.5
"	73	884	009.26E	11 31 51	252.9 25.5
"	73	885	020.57W	13 31 03	252.9 25.6
"	73	886	050.41W	15 30 15	252.9 25.6
"	73	887	080.25W	17 29 27	252.9 25.6
"	73	888	110.09W	19 28 39	252.8 25.7
"	73	889	139.93W	21 27 51	252.8 25.7
April 5, 1965	73	890	169.77W	23 27 04	252.8 25.8
April 6, 1965	74	891	160.26E	01 26 16	252.7 25.8
"	74	892	130.42E	03 25 28	252.7 25.9
"	74	893	100.58E	05 24 40	252.7 25.9
"	74	894	070.74E	07 23 52	252.7 25.9
"	74	895	040.90E	09 23 04	252.6 26.0
April 6, 1965	74	896	011.06E	11 22 16	252.6 26.1

TABLE A-2
TIROS IX OPERATIONAL ATTITUDE DATA

a DATE	b JULIAN DAY	c ORBIT NUMBER	d ASCENDING NODE Longitude (Deg)	e λ_o (Deg)	f ϵ_{max} (Deg)
		Time (GMT) (Hr Min Sec)			
April 6, 1965	74	897	018.77W	13 21 29	252.6 26.1
"	74	898	048.61W	15 20 41	252.5 26.1
"	74	899	078.45W	17 19 53	252.5 26.2
"	74	900	108.29W	19 19 05	252.5 26.2
"	74	901	138.13W	21 18 17	244.0 27.2
April 6, 1965	74	902	167.97W	23 17 29	241.0 28.7
April 7, 1965	75	903	162.18E	01 16 41	237.0 33.0
"	75	904	132.34E	03 15 54	234.0 36.0
"	75	905	102.50E	05 15 06	232.0 40.0
"	75	906	072.66E	07 14 18	229.0 45.0
"	75	907	042.82E	09 13 30	227.0 49.0
"	75	908	012.98E	11 12 42	226.0 53.0
"	75	909	016.85W	13 11 54	226.0 57.0
"	75	910	046.69W	15 11 06	225.9 61.0
"	75	911	076.53W	17 10 18	225.9 66.0
"	75	912	106.37W	19 09 31	225.8 70.0
"	75	913	136.21W	21 08 43	225.8 74.0
April 7, 1965	75	914	166.05W	23 07 55	225.7 78.0
April 8, 1965	76	915	164.10E	01 07 07	225.6 82.0
"	76	916	134.26E	03 06 19	225.6 85.0
"	76	917	104.42E	05 05 31	225.5 89.0
"	76	918	074.58E	07 04 43	225.5 85.0
"	76	919	044.74E	09 03 55	225.4 82.0
"	76	920	014.90E	11 03 08	225.4 78.0
"	76	921	014.93W	13 02 20	225.3 74.0
"	76	922	044.77W	15 01 32	225.3 71.0
"	76	923	074.61W	17 00 44	225.2 67.0
"	76	924	104.45W	18 59 56	225.2 63.0
"	76	925	134.29W	20 59 08	225.1 60.0
April 8, 1965	76	926	164.13W	22 58 20	225.0 56.0
April 9, 1965	77	927	166.02E	00 57 32	227.0 53.0
April 9, 1965	77	928	136.18E	02 56 45	229.0 49.0

TABLE A-2
TIROS IX OPERATIONAL ATTITUDE DATA

a DATE	b JULIAN DAY	c ORBIT NUMBER	d ASCENDING NODE		e λ_o (Deg)	f ϕ_{max} (Deg)
			Longitude (Deg)	Time (GMT) (Hr Min Sec)		
April 9, 1965	77	929	106.34E	04 55 57	231.0	45.0
"	77	930	076.50E	06 55 09	233.0	42.0
"	77	931	046.66E	08 54 21	236.0	38.0
"	77	932	016.82E	10 53 33	236.5	37.5
"	77	933	013.01W	12 52 45	236.6	37.5
"	77	934	042.85W	14 51 57	236.7	37.4
"	77	935	072.69W	16 51 09	236.8	37.4
"	77	936	102.53W	18 50 22	236.9	37.3
"	77	937	132.37W	20 49 34	237.0	37.3
April 9, 1965	77	938	162.21W	22 48 46	237.0	37.2
April 10, 1965	78	939	167.94E	00 47 58	237.0	37.2
"	78	940	138.10E	02 47 10	237.1	37.1
"	78	941	108.26E	04 46 22	237.2	37.1
"	78	942	078.42E	06 45 34	237.3	37.0
"	78	943	048.58E	08 44 46	237.4	37.0
"	78	944	018.74E	10 43 58	237.5	37.0
"	78	945	011.09W	12 43 11	237.5	36.9
"	78	946	040.93W	14 42 23	237.6	36.9
"	78	947	070.77W	16 41 35	237.7	36.8
"	78	948	100.61W	18 40 47	237.8	36.8
"	78	949	130.45W	20 39 59	237.9	36.7
April 10, 1965	78	950	160.29W	22 39 11	238.0	36.7
April 11, 1965	79	951	169.86E	00 38 23	238.1	36.6
"	79	952	140.02E	02 37 35	238.2	36.6
"	79	953	110.18E	04 36 47	238.4	36.6
"	79	954	080.34E	06 35 59	238.5	36.5
"	79	955	050.50E	08 35 12	238.7	36.5
"	79	956	020.66E	10 34 24	238.8	36.4
"	79	957	009.17W	12 33 36	238.9	36.4
"	79	958	039.01W	14 32 48	239.0	36.3
"	79	959	068.85W	16 32 00	239.0	36.3
April 11, 1965	79	960	098.69W	18 31 12	239.1	36.2

TABLE A-2
 TIROS IX OPERATIONAL ATTITUDE DATA

a DATE	b JULIAN DAY	c ORBIT NUMBER	d ASCENDING NODE Longitude (Deg)	e λ_o (Deg)	f ϵ_{max} (Deg)
April 11, 1965	79	961	128.53W	20 30 24	239.2 36.2
April 11, 1965	79	962	158.37W	22 29 36	239.3 36.2
April 12, 1965	80	963	171.78E	00 28 48	239.4 36.1
"	80	964	141.94E	02 28 00	239.5 36.0
"	80	965	112.10E	04 27 13	239.6 35.9
"	80	966	082.26E	06 26 25	239.7 35.9
"	80	967	052.42E	08 25 37	239.8 35.8
"	80	968	022.58E	10 24 49	239.9 35.8
"	80	969	007.25W	12 24 01	240.0 35.7
"	80	970	037.09W	14 23 13	240.1 35.7
"	80	971	066.93W	16 22 25	240.2 35.7
"	80	972	096.77W	18 21 37	240.3 35.6
"	80	973	126.61W	20 20 49	240.4 35.6
April 12, 1965	80	974	156.45W	22 20 01	240.5 35.6
April 13, 1965	81	975	173.81E	00 19 14	240.6 35.6
"	81	976	143.97E	02 18 26	240.7 35.5
"	81	977	114.13E	04 17 38	240.8 35.5
"	81	978	084.30E	06 16 50	240.9 35.4
"	81	979	054.46E	08 16 02	241.0 35.4
"	81	980	024.62E	10 15 14	241.3 35.3
"	81	981	005.21W	12 14 26	241.5 35.3
"	81	982	035.05W	14 13 38	241.6 35.2
"	81	983	064.89W	16 12 50	241.7 35.1
"	81	984	094.73W	18 12 02	241.8 35.1
"	81	985	124.57W	20 11 14	241.9 35.0
April 13, 1965	81	986	154.41W	22 10 27	242.0 34.9
April 14, 1965	82	987	175.74E	00 09 39	242.0 34.9
"	82	988	145.90E	02 08 51	242.1 34.9
"	82	989	116.07E	04 08 03	242.2 34.8
"	82	990	086.23E	06 07 15	242.3 34.8
"	82	991	056.39E	08 06 27	242.4 34.8
April 14, 1965	82	992	026.55E	10 05 39	242.5 34.7

TABLE A-2
TIROS IX OPERATIONAL ATTITUDE DATA

a DATE	b JULIAN DAY	c ORBIT NUMBER	d ASCENDING NODE Longitude (Deg)	e λ_o (Deg)	f ϕ_{max} (Deg)
April 14, 1965	82	993	003.28W	242.6	34.7
"	82	994	033.12W	242.7	34.6
"	82	995	062.96W	242.8	34.6
"	82	996	092.80W	242.9	34.6
"	82	997	122.64W	243.0	34.5
April 14, 1965	82	998	152.47W	243.2	34.5
April 15, 1965	83	999	177.68E	243.4	34.5
"	83	1000	147.84E	243.6	34.4
"	83	1001	118.00E	243.8	34.4
"	83	1002	088.16E	244.0	34.4
"	83	1003	058.32E	244.0	34.3
"	83	1004	028.48E	244.2	34.3
"	83	1005	001.35W	244.4	34.3
"	83	1006	031.19W	244.5	34.2
"	83	1007	061.03W	244.6	34.2
"	83	1008	090.86W	244.7	34.2
"	83	1009	120.70W	244.8	34.1
"	83	1010	150.54W	245.0	34.1
April 15, 1965	83	1011	179.61E	245.2	34.0
April 16, 1965	84	1012	149.77E	245.4	34.0
"	84	1013	119.93E	245.5	34.0
"	84	1014	090.09E	245.6	33.9
"	84	1015	060.25E	245.8	33.9
"	84	1016	030.41E	245.9	33.8
"	84	1017	000.58E	246.0	33.8
"	84	1018	029.25W	246.2	33.7
"	84	1019	059.09W	246.4	33.7
"	84	1020	088.93W	246.6	33.7
"	84	1021	118.77W	246.7	33.6
"	84	1022	148.61W	246.8	33.6
April 16, 1965	84	1023	178.45W	246.9	33.5
April 17, 1965	85	1024	151.70E	247.0	33.5

TABLE A-2
TIROS IX OPERATIONAL ATTITUDE DATA

a DATE	b JULIAN DAY	c ORBIT NUMBER	d ASCENDING Longitude (Deg)	NODE Time (GMT) (Hr Min Sec)	e λ_o (Deg)	f ϵ_{max} (Deg)
April 17, 1965	85	1025	121.86E	03 39 17	247.2	33.5
	"	1026	092.02E	05 38 29	247.4	33.4
	"	1027	062.18E	07 37 41	247.5	33.4
	"	1028	032.35E	09 36 53	247.6	33.3
	"	1029	002.51E	11 36 05	247.7	33.3
	"	1030	027.32W	13 35 17	247.8	33.3
	"	1031	057.16W	15 34 29	247.9	33.2
	"	1032	087.00W	17 33 41	248.0	33.2
	"	1033	116.84W	19 32 53	248.2	33.2
	"	1034	146.68W	21 32 05	248.3	33.2
April 17, 1965	85	1035	176.52W	23 31 17	248.4	33.1
April 18, 1965	86	1036	153.64E	01 30 29	248.6	33.1
	"	1037	123.80E	03 29 41	248.8	33.1
	"	1038	093.96E	05 28 53	248.9	33.0
	"	1039	064.12E	07 28 05	249.0	33.0
	"	1040	034.28E	09 27 18	249.2	33.0
	"	1041	004.44E	11 26 30	249.4	32.9
	"	1042	025.39W	13 25 42	249.5	32.9
	"	1043	055.23W	15 24 54	249.6	32.8
	"	1044	085.07W	17 24 06	249.7	32.8
	"	1045	114.90W	19 23 18	249.8	32.7
	"	1046	144.74W	21 22 30	249.9	32.7
April 18, 1965	86	1047	174.58W	23 21 42	250.0	32.7
April 19, 1965	87	1048	155.57E	01 20 54	250.2	32.6
	"	1049	125.73E	03 20 06	250.3	32.6
	"	1050	095.89E	05 19 18	250.5	32.6
	"	1051	066.05E	07 18 30	250.7	32.6
	"	1052	036.21E	09 17 42	250.9	32.6
	"	1053	006.37E	11 16 54	251.0	32.5
	"	1054	023.46W	13 16 06	251.2	32.5
	"	1055	053.29W	15 15 18	251.3	32.5
April 19, 1965	87	1056	083.13W	17 14 30	251.4	32.5

TABLE A-2
TIROS IX OPERATIONAL ATTITUDE DATA

a DATE	b JULIAN DAY	c ORBIT NUMBER	d ASCENDING NODE Longitude (Deg)	e λ_o (Deg)	f ϕ_{max} (Deg)
April 19, 1965	87	1057	112.97W	19 13 42	251.6
"	87	1058	142.81W	21 12 54	251.8
April 19, 1965	87	1059	172.65W	23 12 06	251.9
April 20, 1965	88	1060	157.40E	01 11 18	252.0
"	88	1061	127.56E	03 10 30	252.2
"	88	1062	097.72E	05 09 42	252.3
"	88	1063	067.88E	07 08 55	252.4
"	88	1064	038.04E	09 08 07	252.6
"	88	1065	008.20E	11 07 19	252.7
"	88	1066	021.63W	13 06 31	252.8
"	88	1067	051.47W	15 05 43	252.9
"	88	1068	081.31W	17 04 55	253.0
"	88	1069	111.15W	19 04 07	253.2
"	88	1070	140.99W	21 03 19	253.3
April 20, 1965	88	1071	170.82W	23 02 31	253.4
April 21, 1965	89	1072	159.33E	01 01 43	253.6
"	89	1073	129.49E	03 00 55	253.8
"	89	1074	099.65E	05 00 07	253.9
"	89	1075	069.81E	06 59 19	254.0
"	89	1076	039.97E	08 58 31	254.2
"	89	1077	010.13E	10 57 44	254.3
"	89	1078	019.70W	12 56 56	254.4
"	89	1079	049.54W	14 56 08	254.5
"	89	1080	079.38W	16 55 20	254.7
"	89	1081	109.22W	18 54 32	254.9
"	89	1082	139.06W	20 53 44	255.0
April 21, 1965	89	1083	168.90W	22 52 56	245.5
April 22, 1965	90	1084	161.25E	00 52 08	245.5
"	90	1085	131.41E	02 51 20	245.5
"	90	1086	101.57E	04 50 32	245.5
"	90	1087	071.73E	06 49 44	245.6
April 22, 1965	90	1088	041.89E	08 48 56	245.7

TABLE A-2
TIROS IX OPERATIONAL ATTITUDE DATA

a DATE	b JULIAN DAY	c ORBIT NUMBER	d ASCENDING NODE Longitude (Deg)	e λ_o (Deg)	f ϵ_{max} (Deg)
April 22, 1965	90	1089	012.05E	245.7	30.6
"	90	1090	017.78W	245.8	30.5
"	90	1091	047.62W	245.9	30.5
"	90	1092	077.46W	246.0	30.5
"	90	1093	107.30W	246.1	30.4
"	90	1094	137.14W	246.2	30.4
April 22, 1965	90	1095	166.98W	246.3	30.3
April 23, 1965	91	1096	163.17E	246.5	30.3
"	91	1097	133.33E	246.0	30.3
"	91	1098	103.49E	245.7	30.2
"	91	1099	073.66E	245.3	30.2
"	91	1100	043.82E	245.0	30.1
"	91	1101	013.98E	244.7	30.1
"	91	1102	015.85W	244.3	30.0
"	91	1103	045.69W	244.0	30.0
"	91	1104	075.53W	228.0	27.6
"	91	1105	105.37W	228.0	27.6
"	91	1106	135.21W	228.0	27.5
April 23, 1965	91	1107	165.05W	228.0	27.5
April 24, 1965	92	1108	165.10E	228.0	27.5
"	92	1109	135.26E	228.0	27.5
"	92	1110	105.42E	228.0	27.5
"	92	1111	075.58E	228.0	27.4
"	92	1112	045.74E	228.0	27.4
"	92	1113	015.90E	228.0	27.4
"	92	1114	013.93W	228.0	27.4
"	92	1115	043.77W	228.0	27.3
"	92	1116	073.61W	228.0	27.3
"	92	1117	103.45W	228.0	27.3
"	92	1118	133.29W	228.0	27.3
April 24, 1965	92	1119	163.13W	228.0	27.3
April 25, 1965	93	1120	167.02E	228.0	27.3

TABLE A-2
 TIROS IX OPERATIONAL ATTITUDE DATA

a DATE	b JULIAN DAY	c ORBIT NUMBER	d ASCENDING NODE Longitude (Deg)	e λ_o (Deg)	f ϕ_{max} (Deg)
April 25, 1965	93	1121	137.18E	228.0	27.2
"	93	1122	107.34E	228.0	27.2
"	93	1123	077.50E	228.0	27.2
"	93	1124	047.66E	228.0	27.2
"	93	1125	017.82E	228.0	27.1
"	93	1126	012.01W	228.0	27.1
"	93	1127	041.85W	228.0	27.1
"	93	1128	071.68W	228.0	27.1
"	93	1129	101.52W	228.0	27.1
"	93	1130	131.36W	228.0	27.0
April 25, 1965	93	1131	161.20W	228.0	27.0
April 26, 1965	94	1132	168.95E	228.0	27.0
"	94	1133	139.11E	228.0	27.0
"	94	1134	109.27E	228.0	27.0
"	94	1135	079.43E	228.1	26.9
"	94	1136	049.59E	228.2	26.9
"	94	1137	019.75E	228.4	26.8
"	94	1138	010.08W	228.6	26.8
"	94	1139	039.92W	228.7	26.7
"	94	1140	069.76W	228.9	26.7
"	94	1141	099.60W	229.0	26.6
"	94	1142	129.44W	229.1	26.6
April 26, 1965	94	1143	159.28W	229.2	26.5
April 27, 1965	95	1144	170.87E	229.4	26.5
"	95	1145	141.03E	229.5	26.4
"	95	1146	111.19E	229.6	26.4
"	95	1147	081.36E	229.8	26.3
"	95	1148	051.52E	229.9	26.3
"	95	1149	021.68E	230.0	26.2
"	95	1150	008.15W	230.1	26.2
"	95	1151	037.99W	230.2	26.1
April 27, 1965	95	1152	067.83W	230.4	26.1

TABLE A-2
TIROS IX OPERATIONAL ATTITUDE DATA

a DATE	b JULIAN DAY	c ORBIT NUMBER	d ASCENDING NODE Longitude (Deg)	e λ_o (Deg)	f ϵ_{max} (Deg)
April 27, 1965	95	1153	097.67W	17 57 04	230.6 26.0
"	95	1154	127.51W	19 56 16	230.8 26.0
"	95	1155	157.35W	21 55 28	231.0 26.0
April 27, 1965	95	1156	172.80E	23 54 40	231.1 26.0
April 28, 1965	96	1157	142.96E	01 53 52	231.2 25.9
"	96	1158	113.12E	03 53 04	231.3 25.8
"	96	1159	083.28E	05 52 16	231.4 25.7
"	96	1160	053.44E	07 51 28	231.5 25.7
"	96	1161	023.60E	09 50 40	231.7 25.6
"	96	1162	006.23W	11 49 52	231.9 25.6
"	96	1163	036.07W	13 49 05	232.0 25.5
"	96	1164	065.91W	15 48 17	232.1 25.5
"	96	1165	095.75W	17 47 29	232.2 25.5
"	96	1166	125.59W	19 46 41	232.3 25.4
"	96	1167	155.43W	21 45 53	232.4 25.4
April 28, 1965	96	1168	174.72E	23 45 05	232.6 25.3
April 29, 1965	97	1169	144.88E	01 44 17	232.7 25.3
"	97	1170	115.04E	03 43 29	232.9 25.2
"	97	1171	085.20E	05 42 41	233.0 25.2
"	97	1172	055.36E	07 41 53	233.1 25.1
"	97	1173	025.52E	09 41 06	233.3 25.1
"	97	1174	004.30W	11 40 18	233.5 25.0
"	97	1175	034.15W	13 39 30	233.7 25.0
"	97	1176	063.99W	15 38 42	233.9 24.9
"	97	1177	093.83W	17 37 54	234.0 24.9
"	97	1178	123.66W	19 37 06	234.1 24.8
"	97	1179	153.50W	21 36 18	234.2 24.8
April 29, 1965	97	1180	176.65E	23 35 30	234.3 24.7
April 30, 1965	98	1181	146.81E	01 34 43	234.5 24.7
"	98	1182	116.97E	03 33 55	234.7 24.6
"	98	1183	087.13E	05 33 07	234.9 24.6
April 30, 1965	98	1184	057.29E	07 32 19	235.0 24.5

TABLE A-2
TIROS IX OPERATIONAL ATTITUDE DATA

a DATE	b JULIAN DAY	c ORBIT NUMBER	d ASCENDING NODE Longitude (Deg)	e λ_o (Deg)	f ϕ_{max} (Deg)
April 30, 1965	98	1185	027.45E	09 31 31	235.1
"	98	1186	002.38W	11 30 43	235.2
"	98	1187	032.22W	13 29 55	235.3
"	98	1188	062.06W	15 29 07	235.5
"	98	1189	091.90W	17 28 20	235.6
"	98	1190	121.74W	19 27 32	235.7
"	98	1191	151.58W	21 26 44	235.9
April 30, 1965	98	1192	178.57E	23 25 56	236.0
May 1, 1965	99	1193	148.73E	01 25 08	236.0
"	99	1194	118.89E	03 24 20	236.0
"	99	1195	089.05E	05 23 32	236.9
"	99	1196	059.21E	07 22 44	236.8
"	99	1197	029.37E	09 21 57	236.8
"	99	1198	000.46W	11 21 09	236.7
"	99	1199	030.30W	13 20 21	236.6
"	99	1200	060.14W	15 19 33	236.6
"	99	1201	089.98W	17 18 45	236.5
"	99	1202	119.82W	19 17 57	236.4
"	99	1203	149.66W	21 17 09	236.3
May 1, 1965	99	1204	179.50W	23 16 22	236.2
May 2, 1965	100	1205	150.65E	01 15 34	237.0
"	100	1206	120.81E	03 14 46	237.0
"	100	1207	090.97E	05 13 58	237.1
"	100	1208	061.13E	07 13 10	237.2
"	100	1209	031.29E	09 12 22	237.4
"	100	1210	001.45E	11 11 34	237.5
"	100	1211	028.38W	13 10 49	237.7
"	100	1212	058.22W	15 10 04	237.8
"	100	1213	088.06W	17 09 19	237.9
"	100	1214	117.90W	19 08 34	237.9
"	100	1215	147.74W	21 07 50	238.0
May 2, 1965	100	1216	177.58W	23 07 05	238.0
					22.9

TABLE A-2
TIROS IX OPERATIONAL ATTITUDE DATA

a DATE	b JULIAN DAY	c ORBIT NUMBER	d ASCENDING NODE Longitude (Deg)	e λ_o (Deg)	f ϑ_{max} (Deg)
May 3, 1965	101	1217	152.57E	01 06 20	238.0 22.9
"	101	1218	122.73E	03 05 35	238.1 22.8
"	101	1219	092.89E	05 04 50	238.2 22.8
"	101	1220	063.05E	07 04 05	238.3 22.7
"	101	1221	033.21E	09 03 21	238.4 22.7
"	101	1222	003.37E	11 02 36	238.5 22.6
"	101	1223	026.46W	13 01 51	238.6 22.6
"	101	1224	056.30W	15 01 06	238.7 22.5
"	101	1225	086.14W	17 00 21	238.7 22.5
"	101	1226	115.97W	18 59 36	238.8 22.4
"	101	1227	145.82W	20 58 52	238.9 22.4
May 3, 1965	101	1228	175.65W	22 58 07	239.0 22.3
May 4, 1965	102	1229	154.54E	00 57 22	239.0 22.3
"	102	1230	124.70E	02 56 37	239.1 22.2
"	102	1231	094.86E	04 54 52	239.2 22.2
"	102	1232	065.02E	06 54 07	239.3 22.1
"	102	1233	035.18E	08 53 23	239.4 22.1
"	102	1234	005.34E	10 52 38	239.5 22.0
"	102	1235	024.49W	12 51 53	239.6 22.0
"	102	1236	054.33W	14 51 08	239.6 21.9
"	102	1237	084.17W	16 50 23	239.7 21.9
"	102	1238	114.01W	18 49 38	239.8 21.8
"	102	1239	143.85W	20 48 54	239.9 21.8
May 4, 1965	102	1240	173.69W	22 48 09	240.0 21.7
May 5, 1965	103	1241	156.46E	00 47 24	240.0 21.7
"	103	1242	126.62E	02 46 39	240.1 21.6
"	103	1243	096.78E	04 45 54	240.2 21.6
"	103	1244	066.94E	06 45 10	240.3 21.5
"	103	1245	037.10E	08 44 25	240.4 21.5
"	103	1246	007.26E	10 43 40	240.5 21.4
"	103	1247	022.57W	12 42 55	240.6 21.3
May 5, 1965	103	1248	052.41W	14 42 10	240.7 21.3

TABLE A-2
TIROS IX OPERATIONAL ATTITUDE DATA

a DATE	b JULIAN DAY	c ORBIT NUMBER	d ASCENDING NODE Longitude (Deg)	e λ_o (Deg)	f ϕ_{max} (Deg)
May 5, 1965	103	1249	082.25W	16 41 25	240.8 21.2
"	103	1250	112.09W	18 40 41	240.9 21.1
"	103	1251	141.93W	20 38 56	241.0 21.1
May 5, 1965	103	1252	171.77W	22 38 11	241.0 21.1
May 6, 1965	104	1253	158.38E	00 37 26	241.0 21.0
"	104	1254	128.54E	02 36 41	241.1 21.0
"	104	1255	098.70E	04 35 57	241.2 20.9
"	104	1256	068.86E	06 35 12	241.3 20.9
"	104	1257	039.02E	08 34 27	241.4 20.8
"	104	1258	009.18E	10 33 42	241.5 20.7
"	104	1259	020.65W	12 32 57	241.6 20.7
"	104	1260	050.49W	14 32 13	241.7 20.6
"	104	1261	080.33W	16 31 28	241.8 20.6
"	104	1262	110.17W	18 30 43	241.9 20.5
"	104	1263	140.00W	20 29 58	241.9 20.5
May 6, 1965	104	1264	169.85W	22 29 13	242.0 20.4
May 7, 1965	105	1265	160.31E	00 28 29	242.0 20.4
"	105	1266	130.47E	02 27 44	242.0 20.3
"	105	1267	100.62E	04 26 59	242.1 20.2
"	105	1268	070.79E	06 26 14	242.2 20.2
"	105	1269	040.95E	08 25 30	242.3 20.1
"	105	1270	011.11E	10 24 45	242.4 20.1
"	105	1271	018.72W	12 23 00	242.5 20.0
"	105	1272	048.56W	14 22 15	242.6 19.9
"	105	1273	078.40W	16 21 30	242.7 19.9
"	105	1274	108.24W	18 20 46	242.8 19.8
"	105	1275	138.08W	20 20 01	242.9 19.8
May 7, 1965	105	1276	167.92W	22 19 16	242.9 19.7
May 8, 1965	106	1277	162.23E	00 18 31	243.0 19.7
"	106	1278	132.39E	02 17 47	243.0 19.6
"	106	1279	102.55E	04 17 02	243.0 19.5
May 8, 1965	106	1280	072.71E	06 16 17	243.0 19.5

TABLE A-2
 TIROS IX OPERATIONAL ATTITUDE DATA

a DATE	b JULIAN DAY	c ORBIT NUMBER	d ASCENDING NODE Longitude (Deg)	e λ_o (Deg)	f ζ_{max} (Deg)
May 8, 1965	106	1281	042.87E	08 15 32	243.1 19.4
"	106	1282	013.03E	10 14 47	243.2 19.4
"	106	1283	016.80W	12 14 03	243.3 19.3
"	106	1284	046.64W	14 13 18	243.4 19.3
"	106	1285	076.48W	16 12 33	243.5 19.2
"	106	1286	106.32W	18 11 48	243.6 19.1
"	106	1287	136.16W	20 11 04	243.7 19.1
May 8, 1965	106	1288	166.00W	22 10 19	243.8 19.0
May 9, 1965	107	1289	164.15E	00 09 34	243.9 19.0
"	107	1290	134.31E	02 08 49	244.0 18.9
"	107	1291	104.47E	04 07 05	244.0 18.9
"	107	1292	074.63E	06 06 20	244.0 18.8
"	107	1293	044.79E	08 05 35	244.0 18.8
"	107	1294	014.95E	10 04 50	244.0 18.8
"	107	1295	014.88W	12 04 06	244.0 18.7
"	107	1296	044.72W	14 03 21	244.0 18.7
"	107	1297	074.56W	16 02 36	244.3 20.0
"	107	1298	104.40W	18 01 51	244.7 20.0
"	107	1299	134.24W	20 01 07	245.0 19.9
"	107	1300	164.08W	22 00 22	245.3 19.9
May 9, 1965	107	1301	166.07E	23 59 37	245.7 19.9
May 10, 1965	108	1302	136.23E	01 58 53	245.9 19.8
"	108	1303	106.39E	03 58 08	246.0 19.8
"	108	1304	076.55E	05 57 23	246.3 19.7
"	108	1305	046.71E	07 56 39	246.5 19.7
"	108	1306	016.87E	09 55 54	246.7 19.6
"	108	1307	012.96W	11 55 09	247.0 19.6
"	108	1308	042.80W	13 54 25	247.3 19.6
"	108	1309	072.64W	15 53 40	247.5 19.5
"	108	1310	102.48W	17 52 55	247.7 19.5
"	108	1311	132.32W	19 51 10	248.0 19.4
May 10, 1965	108	1312	162.16W	21 50 26	248.3 19.4

TABLE A-2
TIROS IX OPERATIONAL ATTITUDE DATA

a DATE	b JULIAN DAY	c ORBIT NUMBER	d ASCENDING NODE Longitude (Deg)	e λ_o (Deg)	f ϕ_{max} (Deg)
May 10, 1965	108	1313	167.99E	23 49 41	248.7 19.3
May 11, 1965	109	1314	138.10E	01 48 56	249.0 19.3
"	109	1315	108.26E	03 48 12	249.1 19.2
"	109	1316	078.42E	05 47 27	249.3 19.2
"	109	1317	048.58E	07 46 42	249.5 19.1
"	109	1318	018.74E	09 45 57	249.7 19.1
"	109	1319	011.09W	11 45 13	249.9 19.0
"	109	1320	040.93W	13 44 28	250.0 19.0
"	109	1321	070.77W	15 43 43	250.0 19.0
"	109	1322	100.61W	17 42 59	250.0 18.9
"	109	1323	130.45W	19 42 14	250.1 18.8
"	109	1324	160.29W	21 41 29	250.1 18.8
May 11, 1965	109	1325	169.86E	23 40 45	250.3 18.7
May 12, 1965	110	1326	140.02E	01 40 00	250.3 18.7
"	110	1327	110.18E	03 39 15	250.5 18.6
"	110	1328	080.34E	05 38 31	250.5 18.6
"	110	1329	050.50E	07 37 46	250.6 18.5
"	110	1330	020.66E	09 37 01	250.6 18.5
"	110	1331	009.17W	11 35 17	250.7 18.4
"	110	1332	039.01W	13 34 32	250.7 18.4
"	110	1333	068.85W	15 33 47	250.8 18.3
"	110	1334	098.69W	17 33 03	250.8 18.3
"	110	1335	128.54W	19 32 18	250.9 18.2
"	110	1336	158.37W	21 31 33	250.9 18.1
May 12, 1965	110	1337	171.77E	23 30 49	251.0 18.1
May 13, 1965	111	1338	141.93E	01 30 04	251.0 18.1
"	111	1339	112.09E	03 29 19	251.0 18.0
"	111	1340	082.25E	05 28 35	251.1 17.9
"	111	1341	052.41E	07 27 50	251.1 17.9
"	111	1342	022.57E	09 27 05	251.2 17.8
"	111	1343	007.26W	11 26 21	251.2 17.8
May 13, 1965	111	1344	037.10W	13 25 36	251.3 17.7

TABLE A-2
 TIROS IX OPERATIONAL ATTITUDE DATA

a DATE	b JULIAN DAY	c ORBIT NUMBER	d ASCENDING NODE Longitude (Deg)	d Time (GMT) (Hr Min Sec)	e λ_o (Deg)	f φ_{max} (Deg)
May 13, 1965	111	1345	066.94W	15 24 51	251.3	17.7
"	111	1346	096.78W	17 24 07	251.4	17.6
"	111	1347	126.62W	19 23 22	251.4	17.6
"	111	1348	156.46W	21 22 37	251.5	17.5
May 13, 1965	111	1349	173.69E	23 21 53	251.5	17.5
May 14, 1965	112	1350	143.85E	01 21 08	251.5	17.4
"	112	1351	114.01E	03 19 23	251.5	17.4
"	112	1352	084.16E	05 18 39	251.6	17.3
"	112	1353	054.33E	07 17 54	251.6	17.3
"	112	1354	024.48E	09 17 09	251.7	17.2
"	112	1355	005.35W	11 16 25	251.7	17.1
"	112	1356	035.19W	13 15 40	251.8	17.1
"	112	1357	065.03W	15 14 55	251.8	17.0
"	112	1358	094.87W	17 14 11	251.9	17.0
"	112	1359	124.71W	19 13 26	251.9	16.9
"	112	1360	154.55W	21 12 41	252.0	16.9
May 14, 1965	112	1361	175.60E	23 11 57	252.0	16.8
May 15, 1965	113	1362	145.76E	01 11 12	252.0	16.8
"	113	1363	115.92E	03 10 27	252.0	16.7
"	113	1364	086.08E	05 09 43	252.0	16.7
"	113	1365	056.24E	07 08 58	252.0	16.6
"	113	1366	026.40E	09 08 13	252.0	16.5
"	113	1367	003.43W	11 07 29	252.0	16.5
"	113	1368	033.27W	13 06 44	252.0	16.5
"	113	1369	063.12W	15 06 00	252.2	16.4
"	113	1370	092.96W	17 05 15	252.4	16.3
"	113	1371	122.80W	19 03 30	252.6	16.3
"	113	1372	152.64W	21 02 46	252.8	16.2
May 15, 1965	113	1373	177.51E	23 02 01	253.0	16.2
May 16, 1965	114	1374	147.67E	01 01 16	253.2	16.1
"	114	1375	117.83E	03 00 32	253.4	16.0
May 16, 1965	114	1376	087.99E	04 59 47	253.6	16.0

TABLE A-2
 TIROS IX OPERATIONAL ATTITUDE DATA

a DATE	b JULIAN DAY	c ORBIT NUMBER	d ASCENDING NODE Longitude (Deg)	e λ_o (Deg)	f ϕ_{max} (Deg)
May 16, 1965	114	1377	058.15E	06 59 02	253.8 15.9
"	114	1378	028.31E	08 58 18	254.0 15.9
"	114	1379	001.52W	10 57 33	254.0 15.8
"	114	1380	031.36W	12 56 49	254.2 15.8
"	114	1381	061.20W	14 56 04	254.4 15.7
"	114	1382	091.05W	16 55 19	254.6 15.7
"	114	1383	120.89W	18 54 35	254.8 15.6
"	114	1384	150.73W	20 53 50	255.0 15.5
May 16, 1965	114	1385	179.42E	22 53 06	255.0 15.5
May 17, 1965	115	1386	149.58E	00 52 21	255.2 15.4
"	115	1387	119.74E	02 51 36	255.4 15.4
"	115	1388	089.90E	04 50 52	255.6 15.3
"	115	1389	060.06E	06 50 07	255.8 15.3
"	115	1390	030.22E	08 49 23	256.0 15.2
"	115	1391	000.38E	10 47 38	256.2 15.2
"	115	1392	029.45W	12 46 53	256.4 15.1
"	115	1393	059.30W	14 46 09	256.6 15.0
"	115	1394	089.14W	16 45 24	256.8 15.0
"	115	1395	118.98W	18 44 40	256.9 14.9
"	115	1396	148.82W	20 43 55	257.0 14.9
May 17, 1965	115	1397	178.66W	22 43 10	257.0 14.8
May 18, 1965	116	1398	151.52E	00 42 26	257.0 14.8
"	116	1399	121.68E	02 41 41	257.2 14.7
"	116	1400	091.84E	04 40 57	257.4 14.7
"	116	1401	062.00E	06 40 12	257.5 14.6
"	116	1402	032.16E	08 39 28	257.6 14.6
"	116	1403	002.32E	10 38 43	257.8 14.5
"	116	1404	027.51W	12 37 58	258.0 14.4
"	116	1405	057.36W	14 37 14	258.2 14.4
"	116	1406	087.20W	16 36 29	258.4 14.3
"	116	1407	117.04W	18 35 45	258.6 14.3
May 18, 1965	116	1408	146.88W	20 35 00	258.8 14.2

TABLE A-2
TIROS IX OPERATIONAL ATTITUDE DATA

a DATE	b JULIAN DAY	c ORBIT NUMBER	d ASCENDING NODE Longitude (Deg)	e λ_o (Deg)	f ε_{max} (Deg)
May 18, 1965	116	1409	176.72W	22 34 16	259.0 14.2
May 19, 1965	117	1410	153.43E	00 33 31	259.0 14.1
"	117	1411	123.59E	02 31 46	259.2 14.1
"	117	1412	093.75E	04 31 01	259.4 14.0
"	117	1413	063.91E	06 30 17	259.6 14.0
"	117	1414	034.07E	08 29 32	259.7 13.9
"	117	1415	004.23E	10 28 48	259.8 13.9
"	117	1416	025.61W	12 28 03	260.0 13.8
"	117	1417	055.45W	14 27 19	260.2 13.8
"	117	1418	085.29W	16 26 34	260.3 13.7
"	117	1419	115.13W	18 25 50	260.4 13.7
"	117	1420	144.97W	20 25 05	260.5 13.6
May 19, 1965	117	1421	174.81W	22 24 20	260.6 13.6
May 20, 1965	118	1422	155.34E	00 23 36	260.8 13.5
"	118	1423	125.50E	02 22 51	261.0 13.5
"	118	1424	095.66E	04 22 07	261.2 13.4
"	118	1425	065.82E	06 21 22	261.4 13.3
"	118	1426	035.97E	08 20 38	261.6 13.3
"	118	1427	006.13E	10 19 53	261.8 13.2
"	118	1428	023.70W	12 19 09	262.0 13.2
"	118	1429	053.54W	14 18 24	262.0 13.1
"	118	1430	083.38W	16 17 40	262.0 13.1
"	118	1431	113.22W	18 15 55	262.0 12.5
"	118	1432	143.06W	20 15 11	222.0 12.5
May 20, 1965	118	1433	172.90W	22 14 26	222.0 12.5
May 21, 1965	119	1434	157.25E	00 13 42	222.0 12.4
"	119	1435	127.40E	02 12 57	222.0 12.4
"	119	1436	097.56E	04 12 13	222.0 12.3
"	119	1437	067.72E	06 11 28	222.0 12.3
"	119	1438	037.88E	08 10 44	222.1 12.3
"	119	1439	008.04E	10 09 59	222.1 12.2
May 21, 1965	119	1440	021.79W	12 09 15	222.1 12.2

TABLE A-2
TIROS IX OPERATIONAL ATTITUDE DATA

a DATE	b JULIAN DAY	c ORBIT NUMBER	d ASCENDING NODE Longitude (Deg)	e λ_o (Deg)	f ϕ_{max} (Deg)
May 21, 1965	119	1441	051.63W	14 08 30	222.2 12.1
"	119	1442	081.47W	16 07 46	222.2 12.1
"	119	1443	111.31W	18 07 01	222.3 12.1
"	119	1444	141.16W	20 06 17	222.3 12.0
May 21, 1965	119	1445	171.00W	22 05 32	222.4 12.0
May 22, 1965	120	1446	159.15E	00 04 48	222.4 12.0
"	120	1447	129.31E	02 04 03	222.4 11.9
"	120	1448	099.47E	04 03 18	222.4 11.9
"	120	1449	069.63E	06 02 34	222.5 11.8
"	120	1450	039.79E	08 01 50	222.5 11.8
"	120	1451	009.95E	10 00 05	222.6 11.8
"	120	1452	019.89W	11 59 21	222.6 11.7
"	120	1453	049.73W	13 58 36	222.7 11.7
"	120	1454	079.57W	15 57 52	222.8 11.6
"	120	1455	109.41W	17 57 08	222.8 11.6
"	120	1456	139.25W	19 56 23	222.9 11.6
"	120	1457	169.09W	21 55 39	223.0 11.5
May 22, 1965	120	1458	161.06E	23 54 54	223.0 11.5
May 23, 1965	121	1459	131.22E	01 54 10	222.9 11.5
"	121	1460	101.37E	03 53 25	222.9 11.4
"	121	1461	071.53E	05 52 41	222.8 11.4
"	121	1462	041.69E	07 51 56	222.8 11.3
"	121	1463	011.85E	09 51 12	222.7 11.3
"	121	1464	017.98W	11 50 28	222.6 11.3
"	121	1465	047.82W	13 49 43	222.5 11.2
"	121	1466	077.66W	15 48 59	222.5 11.2
"	121	1467	107.51W	17 48 14	222.4 11.1
"	121	1468	137.35W	19 47 30	222.4 11.1
"	121	1469	167.19W	21 46 45	222.3 11.1
May 23, 1965	121	1470	162.96E	23 46 01	222.3 11.0
May 24, 1965	122	1471	133.12E	01 44 16	222.2 11.0
May 24, 1965	122	1472	103.28E	03 43 32	222.1 10.9

TABLE A-2
TIROS IX OPERATIONAL ATTITUDE DATA

a DATE	b JULIAN DAY	c ORBIT NUMBER	d ASCENDING Longitude (Deg)	NODE Time (GMT) (Hr Min Sec)	e λ_o (Deg)	f ϵ_{max} (Deg)
May 24, 1965	122	1473	073.44E	05 42 48	222.0	10.9
"	122	1474	043.59E	07 42 03	222.0	10.9
"	122	1475	013.75E	09 41 19	221.9	10.8
"	122	1476	016.08W	11 40 34	221.9	10.8
"	122	1477	045.92W	13 39 50	221.8	10.8
"	122	1478	075.76W	15 39 06	221.7	10.7
"	122	1479	105.60W	17 38 21	221.6	10.7
"	122	1480	135.45W	19 37 37	221.5	10.6
"	122	1481	165.29W	21 36 52	221.4	10.6
May 24, 1965	122	1482	164.86E	23 36 08	221.3	10.6
May 25, 1965	123	1483	134.96E	01 35 23	221.2	10.5
"	123	1484	105.11E	03 34 39	221.1	10.5
"	123	1485	075.27E	05 33 55	221.0	10.4
"	123	1486	045.43E	07 33 10	221.0	10.4
"	123	1487	015.59E	09 32 26	221.0	10.4
"	123	1488	014.24W	11 31 42	221.0	10.3
"	123	1489	044.09W	13 30 57	221.0	10.3
"	123	1490	073.93W	15 30 13	220.9	10.3
"	123	1491	103.77W	17 28 28	220.9	10.3
"	123	1492	133.61W	19 27 44	220.8	10.3
"	123	1493	163.45W	21 27 00	220.8	10.3
May 25, 1965	123	1494	166.70E	23 26 15	220.7	10.3
May 26, 1965	124	1495	136.85E	01 25 31	220.7	10.0
"	124	1496	107.01E	03 24 47	220.7	10.0
"	124	1497	077.17E	05 24 03	220.6	10.0
"	124	1498	047.33E	07 23 18	220.6	9.9
"	124	1499	017.49E	09 22 34	220.5	9.9
"	124	1500	012.35W	11 21 50	220.5	9.8
"	124	1501	042.19W	13 21 05	220.5	9.8
"	124	1502	072.03W	15 20 21	220.5	9.7
"	124	1503	101.87W	17 19 37	220.5	9.7
May 26, 1965	124	1504	131.72W	19 18 52	220.4	9.6

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TIROS IX OPERATIONAL ATTITUDE DATA

a DATE	b JULIAN DAY	c ORBIT NUMBER	d ASCENDING NODE Longitude (Deg)	e λ_o (Deg)	f ϕ_{max} (Deg)
May 26, 1965	124	1505	161.56W	21 18 08	220.4 9.6
May 26, 1965	124	1506	168.59E	23 17 24	220.4 9.5
May 27, 1965	125	1507	138.75E	01 16 39	220.3 9.4
"	125	1508	108.91E	03 15 55	220.3 9.4
"	125	1509	079.06E	05 15 11	220.3 9.4
"	125	1510	049.22E	07 14 26	220.2 9.3
"	125	1511	019.38E	09 12 42	220.2 9.3
"	125	1512	010.45W	11 11 58	220.1 9.2
"	125	1513	040.29W	13 11 13	220.1 9.2
"	125	1514	070.14W	15 10 29	220.0 9.1
"	125	1515	099.98W	17 09 45	220.0 9.1
"	125	1516	129.82W	19 09 00	220.0 9.0
"	125	1517	159.66W	21 08 16	219.9 8.9
May 27, 1965	125	1518	170.48E	23 07 32	219.9 8.9
May 28, 1965	126	1519	140.64E	01 06 48	219.8 8.8
"	126	1520	110.80E	03 06 03	219.8 8.8
"	126	1521	080.96E	05 05 19	219.7 8.7
"	126	1522	051.12E	07 04 35	219.7 8.7
"	126	1523	021.27E	09 03 50	219.6 8.6
"	126	1524	008.56W	11 03 06	219.6 8.6
"	126	1525	038.40W	13 02 22	219.5 8.5
"	126	1526	068.24W	15 01 38	219.5 8.5
"	126	1527	098.08W	17 00 53	219.5 8.4
"	126	1528	127.93W	19 00 09	219.4 8.4
"	126	1529	157.77W	20 59 25	219.4 8.4
May 28, 1965	126	1530	172.38E	22 58 40	219.4 8.3
May 29, 1965	127	1531	142.54E	00 56 56	219.4 8.3
"	127	1532	112.69E	02 56 12	219.4 8.3
"	127	1533	082.85E	04 55 28	219.3 8.2
"	127	1534	053.01E	06 54 43	219.3 8.2
"	127	1535	023.17E	08 53 59	219.3 8.1
May 29, 1965	127	1536	006.67W	10 53 15	219.2 8.0

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TIROS IX OPERATIONAL ATTITUDE DATA

a DATE	b JULIAN DAY	c ORBIT NUMBER	d ASCENDING NODE Longitude (Deg)	d ASCENDING NODE Time (GMT) (Hr Min Sec)	e λ_o (Deg)	f φ_{max} (Deg)
May 29, 1965	127	1537	036.51W	12 52 31	219.2	8.0
"	127	1538	066.35W	14 51 46	219.2	7.9
"	127	1539	096.19W	16 51 02	219.1	7.9
"	127	1540	126.04W	18 50 18	219.1	7.9
"	127	1541	155.88W	20 49 34	219.1	7.8
May 29, 1965	127	1542	174.27E	22 48 49	219.0	7.8
May 30, 1965	128	1543	144.43E	00 48 05	219.0	7.7
"	128	1544	114.58E	02 47 21	219.0	7.6
"	128	1545	084.74E	04 46 37	219.0	7.5
"	128	1546	054.90E	06 45 52	219.0	7.4
"	128	1547	025.06E	08 45 08	219.0	7.3
"	128	1548	004.78W	10 44 24	218.9	7.3
"	128	1549	034.62W	12 43 40	218.9	7.3
"	128	1550	064.46W	14 42 56	218.8	7.3
"	128	1551	094.30W	16 41 11	218.8	7.2
"	128	1552	124.15W	18 40 27	218.6	7.1
"	128	1553	153.99W	20 39 43	218.5	7.1
May 30, 1965	128	1554	176.16E	22 38 59	218.4	7.1
May 31, 1965	129	1555	146.32E	00 38 14	218.0	7.0
"	129	1556	116.47E	02 37 30	217.8	6.9
"	129	1557	086.63E	04 36 46	217.8	6.9
"	129	1558	056.79E	06 36 02	217.6	6.9
"	129	1559	026.95E	08 35 18	217.4	6.8
"	129	1560	002.89W	10 34 33	217.2	6.8
"	129	1561	032.73W	12 33 49	217.0	6.8
"	129	1562	062.57W	14 33 05	216.9	6.7
"	129	1563	092.41W	16 32 21	216.7	6.7
"	129	1564	122.26W	18 31 37	216.5	6.6
"	129	1565	152.10W	20 30 53	216.4	6.6
May 31, 1965	129	1566	178.05E	22 30 08	216.2	6.5
June 1, 1965	130	1567	148.23E	00 29 24	216.0	6.5
June 1, 1965	130	1568	118.38E	02 28 40	215.8	6.5

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TIROS IX OPERATIONAL ATTITUDE DATA

a DATE	b JULIAN DAY	c ORBIT NUMBER	d ASCENDING NODE		e λ_o (Deg)	f ϵ_{max} (Deg)
			Longitude (Deg)	Time (GMT) (Hr Min Sec)		
June 1, 1965	130	1569	088.54E	04 27 56	215.6	6.4
	130	1570	058.70E	06 27 12	215.5	6.4
	130	1571	028.85E	08 26 28	215.4	6.3
	130	1572	000.98W	10 24 43	215.2	6.3
	130	1573	030.82W	12 23 59	215.1	6.2
	130	1574	060.66W	14 23 15	215.0	6.2
	130	1575	090.51W	16 22 31	214.7	6.1
	130	1576	120.35W	18 21 46	214.3	6.1
	130	1577	150.19W	20 21 02	214.0	6.1
	130	1578	179.96E	22 20 18	213.8	6.1
June 2, 1965	131	1579	150.11E	00 19 34	213.6	6.1
	131	1580	120.27E	02 18 49	213.3	6.1
	131	1581	090.43E	04 18 05	213.0	6.1
	131	1582	060.58E	06 17 21	212.8	6.1
	131	1583	030.74E	08 16 37	212.6	6.1
	131	1584	000.90E	10 15 53	212.4	6.1
	131	1585	028.93W	12 15 09	212.2	6.1
	131	1586	058.78W	14 14 24	212.0	6.1
	131	1587	088.62W	16 13 40	211.8	6.1
	131	1588	118.46W	18 12 56	211.5	6.0
	131	1589	148.30W	20 12 12	211.2	5.9
	131	1590	178.15W	22 11 28	211.0	5.9
June 3, 1965	132	1591	152.00E	00 10 44	210.8	5.9
	132	1592	122.16E	02 09 00	210.6	5.9
	132	1593	092.31E	04 08 16	210.3	5.8
	132	1594	062.47E	06 07 31	210.0	5.8
	132	1595	032.63E	08 06 47	209.8	5.8
	132	1596	002.79E	10 06 03	209.6	5.8
	132	1597	027.05W	12 05 19	209.4	5.7
	132	1598	056.89W	14 04 35	209.2	5.7
	132	1599	086.73W	16 03 51	209.0	5.7
	132	1600	116.58W	18 03 07	208.7	5.6

TABLE A-2
TIROS IX OPERATIONAL ATTITUDE DATA

a DATE	b JULIAN DAY	c ORBIT NUMBER	d ASCENDING NODE Longitude (Deg)	e λ_o (Deg)	f ϵ_{max} (Deg)
June 3, 1965	132	1601	146.42W	20 02 23	208.5 5.6
June 3, 1965	132	1602	176.26W	22 01 38	208.2 5.6
June 4, 1965	133	1603	153.88E	00 00 54	208.0 5.5
"	133	1604	124.04E	02 00 10	207.5 5.5
"	133	1605	094.20E	03 59 26	207.0 5.5
"	133	1606	064.36E	05 58 42	206.7 5.5
"	133	1607	034.51E	07 57 58	206.3 5.4
"	133	1608	004.67E	09 57 14	206.0 5.4
"	133	1609	025.16W	11 56 30	205.7 5.4
"	133	1610	055.01W	13 55 46	205.3 5.4
"	133	1611	084.85W	15 55 02	205.0 5.4
"	133	1612	114.69W	17 53 18	204.7 5.3
"	133	1613	144.54W	19 52 33	204.3 5.3
"	133	1614	174.38W	21 51 49	204.0 5.3
June 4, 1965	133	1615	155.77E	23 51 05	203.5 5.3
June 5, 1965	134	1616	125.92E	01 50 21	203.0 5.3
"	134	1617	096.08E	03 49 37	202.7 5.2
"	134	1618	066.24E	05 48 53	202.3 5.2
"	134	1619	036.39E	07 48 09	202.0 5.2
"	134	1620	006.55E	09 47 25	201.7 5.1
"	134	1621	023.28W	11 46 41	201.3 5.1
"	134	1622	053.13W	13 45 57	201.0 5.1
"	134	1623	082.97W	15 45 13	200.5 5.0
"	134	1624	112.81W	17 44 29	200.0 5.0
"	134	1625	142.65W	19 43 45	199.7 5.0
"	134	1626	172.50W	21 43 01	199.3 4.9
June 5, 1965	134	1627	157.65E	23 42 17	199.0 4.9
June 6, 1965	135	1628	127.81E	01 41 33	198.5 4.8
"	135	1629	097.96E	03 40 49	198.0 4.8
"	135	1630	068.12E	05 40 05	197.5 4.7
"	135	1631	038.28E	07 39 21	197.0 4.7
June 6, 1965	135	1632	008.43E	09 37 36	196.7 4.7

TABLE A-2
TIROS IX OPERATIONAL ATTITUDE DATA

a DATE	b JULIAN DAY	c ORBIT NUMBER	d ASCENDING NODE		e λ_o (Deg)	f ϕ_{max} (Deg)
			Longitude (Deg)	Time (GMT) (Hr Min Sec)		
June 6, 1965	135	1633	021.40W	11 36 52	196.3	4.7
	"	1634	051.25W	13 36 08	196.0	4.6
	"	1635	081.09W	15 35 24	195.5	4.6
	"	1636	110.93W	17 34 40	195.0	4.6
	"	1637	140.77W	19 33 56	194.5	4.6
	"	1638	170.62W	21 33 12	194.0	4.5
June 6, 1965	135	1639	159.53E	23 32 28	193.5	4.5
June 7, 1965	136	1640	129.68E	01 31 44	193.0	4.5
	"	1641	099.84E	03 31 00	192.0	4.5
	"	1642	070.00E	05 30 16	191.5	4.4
	"	1643	040.16E	07 29 32	191.0	4.4
	"	1644	010.31E	09 28 48	190.5	4.4
	"	1645	019.52W	11 28 04	190.0	4.4
	"	1646	049.37W	13 27 20	189.5	4.3
	"	1647	079.21W	15 26 36	189.0	4.3
	"	1648	109.05W	17 25 52	188.0	4.3
	"	1649	138.90W	19 25 08	187.5	4.2
	"	1650	168.74W	21 24 24	187.0	4.2
June 7, 1965	136	1651	161.41E	23 23 40	186.5	4.2
June 8, 1965	137	1652	131.56E	01 21 57	186.0	4.2
	"	1653	101.72E	03 21 13	185.0	4.1
	"	1654	071.88E	05 20 29	184.0	4.1
	"	1655	042.03E	07 19 45	183.5	4.1
	"	1656	012.19E	09 19 01	183.0	4.1
	"	1657	017.64W	11 18 17	182.5	4.0
	"	1658	047.49W	13 17 33	182.0	4.0
	"	1659	077.33W	15 16 49	181.3	4.0
	"	1660	107.17W	17 16 05	180.7	3.9
	"	1661	137.02W	19 15 21	180.0	3.9
	"	1662	166.86W	21 14 37	179.4	3.9
June 8, 1965	137	1663	163.28E	23 13 53	178.7	3.9
June 9, 1965	138	1664	133.44E	01 13 09	178.0	3.8

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TIROS IX OPERATIONAL ATTITUDE DATA

a DATE	b JULIAN DAY	c ORBIT NUMBER	d ASCENDING NODE Longitude (Deg)	e λ_o (Deg)	f ϵ_{max} (Deg)
June 9, 1965	138	1665	103.60E	03 12 26	177.2 3.8
	"	1666	073.75E	05 11 42	176.6 3.8
	"	1667	043.91E	07 10 58	175.7 3.7
	"	1668	014.07E	09 10 14	175.0 3.7
	"	1669	015.77W	11 09 30	174.3 3.7
	"	1670	045.61W	13 08 46	173.7 3.6
	"	1671	075.46W	15 08 02	173.2 3.6
	"	1672	105.30W	17 06 18	172.7 3.6
	"	1673	135.14W	19 05 34	172.0 3.5
	"	1674	164.99W	21 04 50	171.5 3.5
June 9, 1965	138	1675	165.16E	23 04 07	171.0 3.5
June 10, 1965	139	1676	135.32E	01 03 23	170.5 3.4
	"	1677	105.47E	03 02 39	170.0 3.4
	"	1678	075.63E	05 01 55	169.6 3.4
	"	1679	045.78E	07 01 11	169.1 3.3
	"	1680	015.94E	09 00 27	168.4 3.3
	"	1681	013.89W	10 59 43	167.6 3.3
	"	1682	043.74W	12 59 00	167.1 3.2
	"	1683	073.58W	14 58 16	166.4 3.2
	"	1684	103.43W	16 57 32	165.7 3.2
	"	1685	133.27W	18 56 48	165.0 3.1
June 10, 1965	139	1686	163.11W	20 56 04	164.7 3.1
	139	1687	167.03E	22 55 20	164.2 3.1
June 11, 1965	140	1688	137.19E	00 54 36	163.7 3.1
	"	1689	107.34E	02 53 53	162.8 3.0
	"	1690	077.50E	04 53 09	161.9 3.0
	"	1691	047.66E	06 52 25	161.0 3.0
	"	1692	017.81E	08 50 41	160.0 3.0
	"	1693	012.02W	10 49 57	159.0 2.9
	"	1694	041.87W	12 49 13	158.4 2.9
	"	1695	071.71W	14 48 30	157.6 2.9
June 11, 1965	140	1696	101.55W	16 47 46	156.8 2.9

TABLE A-2
TIROS IX OPERATIONAL ATTITUDE DATA

a DATE	b JULIAN DAY	c ORBIT NUMBER	d ASCENDING NODE		e λ_o (Deg)	f ϵ_{max} (Deg)
			Longitude (Deg)	Time (GMT) (Hr Min Sec)		
June 11, 1965	140	1697	131.40W	18 47 02	156.0	2.8
"	140	1698	161.24W	20 46 18	230.0	4.7
June 11, 1965	140	1699	168.90E	22 45 34	229.5	4.6
June 12, 1965	141	1700	139.06E	00 44 50	229.0	4.5
"	141	1701	109.22E	02 44 07	228.5	4.4
"	141	1702	079.37E	04 43 23	228.0	4.3
"	141	1703	049.53E	06 42 39	227.5	4.2
"	141	1704	019.68E	08 41 55	227.0	4.1
"	141	1705	010.15W	10 41 11	226.5	4.0
"	141	1706	040.00W	12 40 27	226.0	3.9
"	141	1707	069.84W	14 39 44	225.5	3.9
"	141	1708	099.68W	16 39 00	225.0	3.8
"	141	1709	129.53W	18 38 16	224.5	3.8
"	141	1710	159.37W	20 37 32	224.0	3.7
June 12, 1965	141	1711	170.77E	22 36 49	223.5	3.6
June 13, 1965	142	1712	140.93E	00 35 05	223.0	3.5
"	142	1713	111.08E	02 34 21	222.5	3.4
"	142	1714	081.24E	04 33 37	222.0	3.3
"	142	1715	051.40E	06 32 53	221.5	3.2
"	142	1716	021.55E	08 32 10	221.0	3.1
"	142	1717	008.28W	10 31 26	220.5	3.0
"	142	1718	038.13W	12 30 42	220.0	2.9
"	142	1719	067.97W	14 29 58	219.7	2.8
"	142	1720	097.82W	16 29 15	219.3	2.7
"	142	1721	127.66W	18 28 31	219.0	2.6
"	142	1722	157.50W	20 27 47	218.5	2.5
June 13, 1965	142	1723	172.64E	22 27 03	218.0	2.5
June 14, 1965	143	1724	142.80E	00 26 20	217.5	2.4
"	143	1725	112.95E	02 25 36	217.0	2.3
"	143	1726	083.11E	04 24 52	216.5	2.2
"	143	1727	053.26E	06 24 08	216.0	2.1
June 14, 1965	143	1728	023.42E	08 23 25	215.5	2.1

TABLE A-2

TIROS IX OPERATIONAL ATTITUDE DATA

a DATE	b JULIAN DAY	c ORBIT NUMBER	d ASCENDING Longitude (Deg)	d NODE Time (GMT) (Hr Min Sec)	e λ_o (Deg)	f ϕ_{max} (Deg)
June 14, 1965	143	1729	006.41W	10 22 41	215.0	2.0
"	143	1730	036.26W	12 21 57	214.5	2.0
"	143	1731	066.10W	14 21 13	214.0	1.9
"	143	1732	095.95W	16 19 30	213.5	1.8
"	143	1733	125.79W	18 18 46	213.0	1.7
"	143	1734	155.64W	20 18 02	212.5	1.6
June 14, 1965	143	1735	174.51E	22 17 18	212.0	1.5
June 15, 1965	144	1736	144.65E	00 16 35	211.5	1.5
"	144	1737	114.81E	02 15 51	211.0	1.4
"	144	1738	084.96E	04 15 07	210.5	1.3
"	144	1739	055.12E	06 14 24	210.0	1.2
"	144	1740	025.27E	08 13 40	209.5	1.1
"	144	1741	004.56W	10 12 56	209.0	1.0
"	144	1742	034.41W	12 12 12	208.5	0.9
"	144	1743	064.25W	14 11 29	208.0	0.8
"	144	1744	094.10W	16 10 45	207.5	0.7
"	144	1745	123.94W	18 10 01	207.0	0.7
"	144	1746	153.79W	20 09 18	203.5	0.7
June 15, 1965	144	1747	176.36E	22 08 34	200.0	0.7
June 16, 1965	145	1748	146.51E	00 07 50	197.5	0.7
"	145	1749	116.67E	02 07 06	194.0	0.7
"	145	1750	086.82E	04 06 22	190.5	0.7
"	145	1751	056.98E	06 05 39	187.2	0.7
"	145	1752	027.13E	08 03 55	185.1	0.7
"	145	1753	002.70W	10 03 11	183.2	0.7
"	145	1754	032.54W	12 02 28	179.0	0.7
"	145	1755	062.39W	14 01 44	175.0	0.7
"	145	1756	092.23W	16 01 00	171.0	0.7
"	145	1757	122.08W	18 00 16	167.2	0.8
"	145	1758	151.92W	19 59 33	163.1	0.8
"	145	1759	178.22E	21 58 49	159.2	0.9
June 16, 1965	145	1760	148.38E	23 58 05	155.1	0.9

TABLE A-2
TIROS IX OPERATIONAL ATTITUDE DATA

a DATE	b JULIAN DAY	c ORBIT NUMBER	d ASCENDING NODE Longitude (Deg)	e λ_o (Deg)	f ϕ_{max} (Deg)
June 17, 1965	146	1761	118.53E	01 57 22	150.0 1.0
"	146	1762	088.69E	03 56 38	145.0 1.0
"	146	1763	058.84E	05 55 54	140.0 1.0
"	146	1764	029.00E	07 55 10	134.1 1.0
"	146	1765	000.84W	09 54 27	128.0 1.1
"	146	1766	030.68W	11 53 43	122.2 1.1
"	146	1767	060.53W	13 52 59	117.1 1.2
"	146	1768	090.37W	15 52 16	112.3 1.2
"	146	1769	120.22W	17 51 32	107.1 1.3
"	146	1770	150.06W	19 50 48	102.2 1.3
"	146	1771	179.91W	21 50 05	96.0 1.4
June 17, 1965	146	1772	150.24E	23 48 21	90.0 1.4
June 18, 1965	147	1773	120.39E	01 47 37	89.0 1.4
"	147	1774	090.55E	03 46 54	87.5 1.5
"	147	1775	060.70E	05 46 10	85.0 1.5
"	147	1776	030.86E	07 45 26	84.2 1.6
"	147	1777	001.01E	09 44 43	82.5 1.7
"	147	1778	028.82W	11 43 59	81.7 1.7
"	147	1779	058.67W	13 43 15	80.0 1.8
"	147	1780	088.51W	15 42 32	79.0 1.9
"	147	1781	118.36W	17 41 48	78.0 1.9
"	147	1782	148.20W	19 41 05	76.1 2.0
"	147	1783	178.05W	21 40 21	74.7 2.1
June 18, 1965	147	1784	152.10E	23 39 37	73.0 2.1
June 19, 1965	148	1785	122.25E	01 38 54	72.7 2.2
"	148	1786	092.41E	03 38 10	72.5 2.2
"	148	1787	062.56E	05 37 26	72.3 2.3
"	148	1788	032.72E	07 36 43	72.0 2.4
"	148	1789	002.87E	09 35 59	71.7 2.5
"	148	1790	026.96W	11 35 16	71.5 2.5
June 19, 1965	148	1791	056.81W	13 34 32	71.3 2.5

TABLE A-2
 TIROS IX OPERATIONAL ATTITUDE DATA

a DATE	b JULIAN DAY	c ORBIT NUMBER	d ASCENDING NODE Longitude (Deg)	e λ_o (Deg)	f ϵ_{max} (Deg)
June 19, 1965	148	1792	086.65W	15 32 48	71.0 2.6
"	148	1793	116.50W	17 32 05	70.7 2.6
"	148	1794	146.34W	19 31 21	70.5 2.7
"	148	1795	176.19W	21 30 37	70.3 2.7
June 19, 1965	148	1796	153.96E	23 29 54	70.0 2.8
June 20, 1965	149	1797	124.11E	01 29 10	70.1 2.9
"	149	1798	094.27E	03 28 27	70.2 3.0
"	149	1799	064.42E	05 27 43	70.5 3.0
"	149	1800	034.58E	07 26 59	70.7 3.1
"	149	1801	004.73E	09 26 16	70.9 • 3.1
"	149	1802	025.10W	11 25 32	71.0 3.2
"	149	1803	054.95W	13 24 49	71.3 3.2
"	149	1804	084.80W	15 24 05	71.7 3.3
"	149	1805	114.64W	17 23 21	72.0 3.4
"	149	1806	144.49W	19 22 38	72.3 3.4
"	149	1807	174.33W	21 21 54	72.7 3.5
June 20, 1965	149	1808	155.81E	23 21 11	73.0 3.5
June 21, 1965	150	1809	125.97E	01 19 36	73.0 3.6
"	150	1810	096.12E	03 18 49	73.0 3.7
"	150	1811	066.28E	05 18 03	74.0 3.7
"	150	1812	036.43E	07 17 16	74.5 3.8
"	150	1813	006.59E	09 16 30	75.0 3.9
"	150	1814	023.25W	11 15 43	75.7 4.0
"	150	1815	053.09W	13 14 57	76.0 4.0
"	150	1816	082.94W	15 14 10	77.0 4.0
"	150	1817	112.78W	17 13 23	77.0 4.0
"	150	1818	142.63W	19 12 37	78.2 4.1
"	150	1819	172.48W	21 11 50	78.1 4.2
June 21, 1965	150	1820	157.67E	23 11 04	79.0 4.3
June 22, 1965	151	1821	127.84E	01 10 17	80.2 4.3
"	151	1822	098.10E	03 09 31	80.3 4.4
June 22, 1965	151	1823	068.15E	05 08 44	81.0 4.4

TABLE A-2
TIROS IX OPERATIONAL ATTITUDE DATA

a DATE	b JULIAN DAY	c ORBIT NUMBER	d ASCENDING NODE Longitude (Deg)	e λ_o (Deg)	f ϕ_{max} (Deg)
June 22, 1965	151	1824	038.31E	07 07 58	82.1 4.5
"	151	1825	008.46E	09 07 11	82.0 4.6
"	151	1826	021.37W	11 06 25	83.2 4.6
"	151	1827	051.22W	13 05 38	83.0 4.7
"	151	1828	081.06W	15 04 52	84.3 4.7
"	151	1829	110.91W	17 04 05	85.0 4.8
"	151	1830	140.75W	19 03 18	85.2 4.8
"	151	1831	170.60W	21 02 32	86.1 4.9
June 22, 1965	151	1832	159.54E	23 01 45	87.0 4.9
June 23, 1965	152	1833	129.70E	01 00 59	88.1 5.0
"	152	1834	099.85E	03 00 12	89.3 5.0
"	152	1835	070.01E	04 59 26	90.2 5.1
"	152	1836	040.16E	06 58 39	90.0 5.1
"	152	1837	010.32E	08 57 53	90.3 5.2
"	152	1838	019.52W	10 57 06	91.0 5.2
"	152	1839	049.36W	12 56 20	92.0 5.2
"	152	1840	079.21W	14 55 33	93.0 5.3
"	152	1841	109.06W	16 54 47	23.0 1.1
"	152	1842	138.90W	18 54 00	23.5 1.2
"	152	1843	168.75W	20 53 14	24.0 1.2
June 23, 1965	152	1844	161.40E	22 52 27	25.0 1.2
June 24, 1965	153	1845	131.55E	00 51 41	25.5 1.3
"	153	1846	101.71E	02 50 54	25.5 1.3
"	153	1847	071.86E	04 50 08	26.0 1.3
"	153	1848	042.02E	06 49 21	26.0 1.4
"	153	1849	012.17E	08 48 35	26.0 1.4
"	153	1850	017.66W	10 47 48	26.0 1.4
"	153	1851	047.51W	12 47 02	26.5 1.5
"	153	1852	077.36W	14 46 15	27.0 1.5
"	153	1853	107.20W	16 45 29	27.0 1.5
"	153	1854	137.05W	18 44 42	27.5 1.5
June 24, 1965	153	1855	166.89W	20 43 56	28.0 1.6

TABLE A-2
TIROS IX OPERATIONAL ATTITUDE DATA

a DATE	b JULIAN DAY	c ORBIT NUMBER	d ASCENDING NODE Longitude (Deg)	e λ_0 (Deg)	f ψ_{max} (Deg)
June 24, 1965	153	1856	163.25E	22 43 10	28.5 1.6
June 25, 1965	154	1857	133.41E	00 42 23	28.8 1.6
"	154	1858	103.56E	02 41 37	29.0 1.6
"	154	1859	073.71E	04 40 50	29.3 1.6
"	154	1860	043.87E	06 40 04	29.7 1.7
"	154	1861	014.02E	08 39 17	30.0 1.7
"	154	1862	015.81W	10 38 31	30.3 1.7
"	154	1863	045.66W	12 37 44	31.0 1.7
"	154	1864	075.50W	14 36 58	31.2 1.7
"	154	1865	105.35W	16 36 11	31.5 1.8
"	154	1866	135.20W	18 35 25	32.0 1.8
"	154	1867	165.04W	20 44 39	32.5 1.9
June 25, 1965	154	1868	165.10E	22 33 52	32.5 1.9
June 26, 1965	155	1869	135.26E	00 33 06	33.0 1.9
"	155	1870	105.41E	02 32 19	33.3 1.9
"	155	1871	075.57E	04 31 33	33.5 2.0
"	155	1872	045.72E	06 30 46	34.0 2.1
"	155	1873	015.87E	08 30 00	34.3 2.1
"	155	1874	013.96W	10 29 13	34.5 2.1
"	155	1875	043.81W	12 28 27	35.0 2.2
"	155	1876	073.65W	14 27 41	35.2 2.2
"	155	1877	103.50W	16 26 54	35.5 2.2
"	155	1878	133.35W	18 26 08	36.0 2.3
"	155	1879	163.19W	20 25 21	36.2 2.3
June 26, 1965	155	1880	166.95E	22 24 35	36.5 2.3
June 27, 1965	156	1881	137.11E	00 23 48	37.0 2.3
"	156	1882	107.26E	02 23 02	37.5 2.3
"	156	1883	077.42E	04 22 16	38.0 2.3
"	156	1884	047.57E	06 21 29	38.3 2.3
"	156	1885	017.72E	08 20 43	38.5 2.3
"	156	1886	012.11W	10 19 56	39.0 2.4
June 27, 1965	156	1887	041.96W	12 19 10	39.3 2.4

TABLE A-2
TIROS IX OPERATIONAL ATTITUDE DATA

a DATE	b JULIAN DAY	c ORBIT NUMBER	d ASCENDING NODE Longitude (Deg)	e λ_o (Deg)	f ϕ_{max} (Deg)
June 27, 1965	156	1888	071.80W	14 18 23	39.8 2.4
"	156	1889	101.65W	16 17 37	40.2 2.4
"	156	1890	131.50W	18 16 51	40.5 2.4
"	156	1891	161.34W	20 16 04	40.8 2.4
June 27, 1965	156	1892	168.80E	22 15 18	40.2 2.4
June 28, 1965	157	1893	138.96E	00 14 31	41.0 2.4
"	157	1894	109.11E	02 13 45	41.2 2.4
"	157	1895	079.26E	04 12 59	41.5 2.4
"	157	1896	049.42E	06 12 12	42.0 2.4
"	157	1897	019.57E	08 11 26	42.3 2.4
"	157	1898	010.26W	10 10 39	42.5 2.4
"	157	1899	040.11W	12 09 53	43.0 2.4
"	157	1900	069.96W	14 09 07	43.5 2.4
"	157	1901	099.80W	16 08 20	44.0 2.4
"	157	1902	129.65W	18 07 34	44.0 2.3
"	157	1903	159.49W	20 06 47	43.5 2.3
June 28, 1965	157	1904	170.65E	22 06 01	43.0 2.3
June 29, 1965	158	1905	140.78E	00 05 15	42.5 2.2
"	158	1906	110.94E	02 04 28	42.0 2.2
"	158	1907	081.09E	04 03 42	42.0 2.2
"	158	1908	051.24E	06 02 55	41.5 2.1
"	158	1909	021.40E	08 02 09	41.0 2.1
"	158	1910	008.44W	10 01 23	40.5 2.0
"	158	1911	038.28W	12 00 36	40.0 2.0
"	158	1912	068.13W	13 59 50	39.8 1.9
"	158	1913	097.98W	15 59 04	39.5 1.9
"	158	1914	127.82W	17 58 17	39.0 2.0
"	158	1915	157.67W	19 57 31	38.5 2.0
"	158	1916	172.48E	21 56 44	38.0 2.0
June 29, 1965	158	1917	142.63E	23 55 58	37.8 2.0
June 30, 1965	159	1918	112.78E	01 55 12	37.3 2.0
June 30, 1965	159	1919	082.94E	03 54 29	37.0 2.0

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TIROS IX OPERATIONAL ATTITUDE DATA

a DATE	b JULIAN DAY	c ORBIT NUMBER	d ASCENDING NODE Longitude (Deg)	e λ_o (Deg)	f ϵ_{max} (Deg)
		Time (GMT) (Hr Min Sec)			
June 30, 1965	159	1920	053.09E	05 53 42	36.7 2.0
"	159	1921	023.24E	07 52 56	36.0 2.0
"	159	1922	006.59W	09 52 10	35.7 2.0
"	159	1923	036.44W	11 51 23	35.3 2.0
"	159	1924	066.28W	13 50 37	35.0 2.0
"	159	1925	096.13W	15 49 51	34.3 2.0
"	159	1926	125.98W	17 49 04	34.0 2.1
"	159	1927	155.82W	19 48 18	33.7 2.1
"	159	1928	174.32E	21 47 32	33.0 2.1
June 30, 1965	159	1929	144.47E	23 46 45	32.7 2.1
July 1, 1965	160	1930	114.63E	01 45 59	32.3 2.1
"	160	1931	084.78E	03 45 13	32.0 2.1
"	160	1932	054.94E	05 44 27	31.7 2.1
"	160	1933	025.09E	07 43 40	31.0 2.1
"	160	1934	004.75W	09 42 54	30.7 2.1
"	160	1935	034.59W	11 42 08	30.3 2.1
"	160	1936	064.44W	13 41 21	29.8 2.1
"	160	1937	094.29W	15 40 35	29.3 2.1
"	160	1938	124.13W	17 39 49	29.0 2.2
"	160	1939	153.98W	19 39 02	28.5 2.2
"	160	1940	176.17E	21 38 16	28.0 2.2
July 1, 1965	160	1941	146.32E	23 37 30	27.8 2.2
July 2, 1965	161	1942	116.47E	01 36 43	23.5 2.4
"	161	1943	086.63E	03 35 57	23.0 2.4
"	161	1944	056.78E	05 35 11	22.5 2.4
"	161	1945	026.93E	07 34 24	22.0 2.4
"	161	1946	002.90W	09 33 38	21.5 2.4
"	161	1947	032.75W	11 32 52	21.0 2.4
"	161	1948	062.60W	13 32 06	20.5 2.4
"	161	1949	092.44W	15 31 19	20.0 2.4
"	161	1950	122.29W	17 30 33	20.0 2.4
July 2, 1965	161	1951	152.13W	19 29 47	19.8 2.4

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TIROS IX OPERATIONAL ATTITUDE DATA

a DATE	b JULIAN DAY	c ORBIT NUMBER	d ASCENDING NODE Longitude (Deg)	e λ_0 (Deg)	f ϕ_{max} (Deg)
July 2, 1965	161	1952	178.01E	19.0	2.4
July 2, 1965	161	1953	148.16E	19.0	2.4
July 3, 1965	162	1954	118.32E	18.5	2.4
"	162	1955	088.47E	18.0	2.4
"	162	1956	058.62E	17.5	2.4
"	162	1957	028.78E	17.0	2.4
"	162	1958	001.06W	17.0	2.5
"	162	1959	030.91W	16.5	2.5
"	162	1960	060.75W	16.0	2.5
"	162	1961	090.60W	15.5	2.5
"	162	1962	120.44W	15.0	2.5
"	162	1963	150.29W	14.8	2.5
"	162	1964	179.85E	14.3	2.5
July 3, 1965	162	1965	150.01E	14.0	2.5
July 4, 1965	163	1966	120.16E	13.3	2.5
"	163	1967	090.31E	13.0	2.5
"	163	1968	060.47E	12.7	2.5
"	163	1969	030.62E	12.3	2.5
"	163	1970	000.77E	12.0	2.5
"	163	1971	029.06W	11.5	2.5
"	163	1972	058.91W	11.0	2.5
"	163	1973	088.76W	10.7	2.5
"	163	1974	118.60W	10.3	2.5
"	163	1975	148.45W	10.0	2.5
"	163	1976	178.30W	10.0	2.5
July 4, 1965	163	1977	151.85E	9.5	2.5
July 5, 1965	164	1978	122.00E	8.5	2.5
"	164	1979	092.16E	7.0	2.5
"	164	1980	062.31E	6.0	2.5
"	164	1981	032.46E	5.0	2.5
"	164	1982	002.62E	4.0	2.5
July 5, 1965	164	1983	027.22W	3.0	2.5

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TIROS IX OPERATIONAL ATTITUDE DATA

a DATE	b JULIAN DAY	c ORBIT NUMBER	d ASCENDING NODE Longitude (Deg)	e λ_o (Deg)	f τ_{max} (Deg)
July 5, 1965	164	1984	057.07W	13 04 16	1.5 2.5
"	164	1985	086.91W	15 03 30	0.5 2.5
"	164	1986	116.76W	17 02 44	359.5 2.5
"	164	1987	146.61W	19 01 58	358.0 2.5
"	164	1988	176.45W	21 01 11	357.0 2.5
July 5, 1965	164	1989	153.69E	23 00 25	356.0 2.5
July 6, 1965	165	1990	123.88E	00 59 39	355.0 2.5
"	165	1991	094.04E	02 58 53	354.0 2.5
"	165	1992	064.19E	04 58 06	353.0 2.5
"	165	1993	034.34E	06 57 20	352.0 2.5
"	165	1994	004.50E	08 56 34	351.0 2.5
"	165	1995	025.34W	10 55 48	350.0 2.5
"	165	1996	055.19W	12 55 01	348.7 2.6
"	165	1997	085.03W	14 54 15	347.5 2.6
"	165	1998	114.88W	16 53 29	346.5 2.6
"	165	1999	144.73W	18 52 42	345.5 2.6
"	165	2000	174.57W	20 51 56	344.5 2.6
July 6, 1965	165	2001	155.57E	22 51 10	343.0 2.6
July 7, 1965	166	2002	125.72E	00 50 24	343.0 2.6
"	166	2003	095.88E	02 49 38	343.5 2.6
"	166	2004	066.03E	04 48 51	344.0 2.6
"	166	2005	036.19E	06 48 05	344.5 2.6
"	166	2006	006.34E	08 47 19	345.0 2.6
"	166	2007	023.50W	10 46 32	345.5 2.6
"	166	2008	053.34W	12 45 46	346.3 2.6
"	166	2009	083.19W	14 45 00	346.7 2.6
"	166	2010	113.04W	16 44 14	347.5 2.7
"	166	2011	142.88W	18 43 27	348.0 2.7
"	166	2012	172.73W	20 42 41	348.5 2.7
July 7, 1965	166	2013	157.41E	22 41 55	349.0 2.7
July 8, 1965	167	2014	127.57E	00 41 09	349.5 2.7
July 8, 1965	167	2015	097.72E	02 40 22	350.0 2.7

TABLE A-2
TIROS IX OPERATIONAL ATTITUDE DATA

a DATE	b JULIAN DAY	c ORBIT NUMBER	d ASCENDING NODE Longitude (Deg)	e λ_o (Deg)	f ϕ_{max} (Deg)
July 8, 1965	167	2016	067.88E	04 39 36	351.0 2.7
"	167	2017	038.03E	06 38 50	351.5 2.7
"	167	2018	008.18E	08 38 04	352.0 2.7
"	167	2019	021.65W	10 37 17	352.5 2.7
"	167	2020	051.50W	12 36 31	353.0 2.7
"	167	2021	081.35W	14 35 45	353.5 2.7
"	167	2022	111.19W	16 34 59	354.0 2.7
"	167	2023	141.04W	18 34 12	354.5 2.7
"	167	2024	170.89W	20 33 26	355.0 2.7
July 8, 1965	167	2025	159.26E	22 32 40	356.0 2.7
July 9, 1965	168	2026	129.41E	00 31 54	356.5 2.7
"	168	2027	099.56E	02 31 07	357.0 2.7
"	168	2028	069.72E	04 30 21	357.5 2.7
"	168	2029	039.87E	06 29 35	357.9 2.7
"	168	2030	010.03E	08 28 49	358.3 2.7
"	168	2031	019.81W	10 28 02	359.0 2.7
"	168	2032	049.66W	12 27 16	359.5 2.8
"	168	2033	079.50W	14 26 30	360.0 2.8
"	168	2034	109.35W	16 25 44	295.0 0.3
"	168	2035	139.20W	18 24 57	297.0 0.3
"	168	2036	169.04W	20 24 11	299.0 0.3
July 9, 1965	168	2037	161.10E	22 23 25	301.2 0.3
July 10, 1965	169	2038	131.25E	00 22 39	303.2 0.3
"	169	2039	101.41E	02 21 53	306.2 0.3
"	169	2040	071.56E	04 21 06	309.2 0.3
"	169	2041	041.71E	06 20 20	312.0 0.3
"	169	2042	011.87E	08 19 34	315.0 0.3
"	169	2043	017.97W	10 18 48	319.3 0.3
"	169	2044	047.82W	12 18 01	324.0 0.3
"	169	2045	077.66W	14 17 15	326.8 0.3
"	169	2046	107.51W	16 16 29	329.4 0.3
July 10, 1965	169	2047	137.36W	18 15 43	333.1 0.3

TABLE A-2
TIROS IX OPERATIONAL ATTITUDE DATA

a DATE	b JULIAN DAY	c ORBIT NUMBER	d ASCENDING NODE		e λ_o (Deg)	f ϵ_{max} (Deg)
			Longitude (Deg)	Time (GMT) (Hr Min Sec)		
July 10, 1965	169	2048	167.20W	20 14 56	335.2	0.3
July 10, 1965	169	2049	162.94E	22 14 10	337.2	0.3
July 11, 1965	170	2050	133.10E	00 13 24	338.0	0.3
"	170	2051	103.25E	02 12 38	339.0	0.3
"	170	2052	073.40E	04 11 51	340.0	0.3
"	170	2053	043.56E	06 11 05	341.2	0.3
"	170	2054	013.71E	08 10 19	342.2	0.3
"	170	2055	016.13W	10 09 33	343.2	0.3
"	170	2056	045.97W	12 08 46	344.1	0.3
"	170	2057	075.82W	14 08 00	345.0	0.3
"	170	2058	105.67W	16 07 14	346.0	0.3
"	170	2059	135.51W	18 06 28	347.0	0.3
"	170	2060	165.36W	20 05 41	347.8	0.3
July 11, 1965	170	2061	164.78E	22 04 55	348.5	0.3
July 12, 1965	171	2062	134.94E	00 04 09	349.0	0.3
"	171	2063	105.09E	02 03 23	350.0	0.3
"	171	2064	075.25E	04 02 36	350.8	0.3
"	171	2065	045.40E	06 01 50	351.5	0.3
"	171	2066	015.55E	08 01 04	352.2	0.3
"	171	2067	014.28W	10 00 18	352.8	0.3
"	171	2068	044.13W	11 59 31	353.2	0.3
"	171	2069	073.98W	13 58 45	354.0	0.3
"	171	2070	103.82W	15 57 59	354.7	0.3
"	171	2071	133.67W	17 57 13	355.3	0.3
"	171	2072	163.52W	19 56 26	356.0	0.3
"	171	2073	166.63E	21 55 40	356.5	0.3
July 12, 1965	171	2074	136.78E	23 54 54	357.1	0.3
July 13, 1965	172	2075	106.90E	01 54 08	357.9	0.3
"	172	2076	077.05E	03 53 22	358.4	0.3
"	172	2077	047.21E	05 52 36	359.0	0.3
"	172	2078	017.36E	07 51 49	359.8	0.3
July 13, 1965	172	2079	012.48W	09 51 03	0.1	0.3

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 TIROS IX OPERATIONAL ATTITUDE DATA

a DATE	b JULIAN DAY	c ORBIT NUMBER	d ASCENDING NODE Longitude (Deg)	e λ_o (Deg)	f ϕ_{max} (Deg)
July 13, 1965	172	2080	042.32W	0.4	0.3
"	172	2081	072.17W	1.0	0.3
"	172	2082	102.01W	1.5	0.3
"	172	2083	131.86W	2.0	0.3
"	172	2084	161.71W	2.3	0.3
"	172	2085	168.44E	2.7	0.3
July 13, 1965	172	2086	138.59E	3.0	0.3
July 14, 1965	173	2087	108.74E	52.2	0.4
"	173	2088	078.90E	52.8	0.4
"	173	2089	049.05E	53.0	0.4
"	173	2090	019.20E	53.0	0.4
"	173	2091	010.63W	53.2	0.5
"	173	2092	040.48W	53.4	0.5
"	173	2093	070.33W	53.5	0.5
"	173	2094	100.17W	53.7	0.6
"	173	2095	130.02W	53.9	0.6
"	173	2096	159.87W	54.0	0.6
"	173	2097	170.28E	54.2	0.6
July 14, 1965	173	2098	140.43E	54.4	0.7
July 15, 1965	174	2099	110.58E	54.5	0.7
"	174	2100	080.74E	54.7	0.7
"	174	2101	050.89E	54.9	0.8
"	174	2102	021.04E	55.0	0.8
"	174	2103	008.79W	55.2	0.8
"	174	2104	038.64W	55.4	0.9
"	174	2105	068.49W	55.6	0.9
"	174	2106	098.33W	55.9	0.9
"	174	2107	128.18W	56.0	0.9
"	174	2108	158.03W	56.0	1.0
"	174	2109	172.12E	56.0	1.0
July 15, 1965	174	2110	142.27E	56.3	1.0

TABLE A-2
TIROS IX OPERATIONAL ATTITUDE DATA

a DATE	b JULIAN DAY	c ORBIT NUMBER	d ASCENDING NODE		e λ_o (Deg)	f ϵ_{max} (Deg)
			Longitude (Deg)	Time (GMT) (Hr Min Sec)		
July 16, 1965	175	2111	112.43E	01 26 22	34.48	1.13
	"	2112	082.58E	03 25 36	35.01	1.16
	"	2113	052.73E	05 24 50	35.49	1.19
	"	2114	022.89E	07 24 03	35.94	1.21
	"	2115	006.95W	09 23 17	36.30	1.24
	"	2116	036.80W	11 22 31	36.64	1.26
	"	2117	066.64W	13 21 45	36.96	1.28
	"	2118	096.49W	15 20 58	37.27	1.30
	"	2119	126.34W	17 20 12	37.58	1.33
	"	2120	156.18W	19 19 26	37.87	1.35
	"	2121	173.96E	21 18 39	38.14	1.37
July 16, 1965	175	2122	144.11E	23 17 53	38.42	1.40
July 17, 1965	176	2123	114.27E	01 17 07	38.68	1.42
	"	2124	084.42E	03 16 21	38.94	1.44
	"	2125	054.57E	05 15 34	39.18	1.47
	"	2126	024.73E	07 14 48	39.48	1.49
	"	2127	005.11W	09 14 02	39.85	1.51
	"	2128	034.96W	11 13 15	40.21	1.54
	"	2129	064.80W	13 12 29	40.56	1.56
	"	2130	094.65W	15 11 43	40.90	1.58
	"	2131	124.49W	17 10 56	41.23	1.61
	"	2132	154.34W	19 10 10	41.55	1.63
	"	2133	175.80E	21 09 24	41.86	1.65
July 17, 1965	176	2134	145.96E	23 08 38	42.16	1.68
July 18, 1965	177	2135	116.11E	01 07 51	42.46	1.70
	"	2136	086.26E	03 07 05	42.74	1.72
	"	2137	056.42E	05 06 19	43.02	1.75
	"	2138	026.57E	07 05 32	43.29	1.77
	"	2139	003.27W	09 04 46	43.58	1.79
	"	2140	033.11W	11 04 00	43.87	1.80
	"	2141	062.96W	13 03 13	44.15	1.82
July 18, 1965	177	2142	092.81W	15 02 27	44.42	1.84

TABLE A-2
TIROS IX OPERATIONAL ATTITUDE DATA

a DATE	b JULIAN DAY	c ORBIT NUMBER	d ASCENDING NODE Longitude (Deg)	e λ_o (Deg)	f ϕ_{max} (Deg)
July 18, 1965	177	2143	122.65W	17 01 41	44.70
"	177	2144	152.50W	19 00 54	44.96
"	177	2145	177.65E	21 00 08	45.22
July 18, 1965	177	2146	147.80E	22 59 22	45.48
July 19, 1965	178	2147	117.95E	00 58 36	46.73
"	178	2148	088.11E	02 57 49	45.97
"	178	2149	058.26E	04 57 03	46.22
"	178	2150	028.41E	06 56 17	46.48
"	178	2151	001.42W	08 55 30	46.81
"	178	2152	031.27W	10 54 44	47.13
"	178	2153	061.12W	12 53 58	47.45
"	178	2154	090.96W	14 53 11	47.76
"	178	2155	120.81W	16 52 25	48.07
"	178	2156	150.65W	18 51 39	48.36
"	178	2157	179.49E	20 50 52	48.65
July 19, 1965	178	2158	149.64E	22 50 06	48.94
July 20, 1965	179	2159	119.80E	00 49 20	49.21
"	179	2160	089.95E	02 48 33	49.49
"	179	2161	060.10E	04 47 47	49.75
"	179	2162	030.26E	06 47 01	50.03
"	179	2163	000.41E	08 46 14	50.31
"	179	2164	029.42W	10 45 28	50.58
"	179	2165	059.27W	12 44 42	50.86
"	179	2166	089.12W	14 43 55	51.12
"	179	2167	118.96W	16 43 09	51.38
"	179	2168	148.81W	18 42 23	51.64
"	179	2169	178.66W	20 41 36	51.89
July 20, 1965	179	2170	151.49E	22 40 50	52.14
July 21, 1965	180	2171	121.64E	00 40 04	52.38
"	180	2172	091.80E	02 39 17	52.62
"	180	2173	061.95E	04 38 30	43.24
July 21, 1965	180	2174	032.10E	06 37 44	43.64

TABLE A-2
TIROS IX OPERATIONAL ATTITUDE DATA

a DATE	b JULIAN DAY	c ORBIT NUMBER	d ASCENDING NODE Longitude (Deg)	d ASCENDING NODE Time (GMT) (Hr Min Sec)	e λ_o (Deg)	f ϵ_{max} (Deg)
July 21, 1965	180	2175	002.26E	08 36 58	44.09	2.10
"	180	2176	027.58W	10 36 11	44.54	2.12
"	180	2177	057.43W	12 35 25	44.98	2.14
"	180	2178	087.27W	14 34 39	45.42	2.16
"	180	2179	117.12W	16 33 52	45.84	2.17
"	180	2180	146.96W	18 33 06	46.26	2.19
"	180	2181	176.81W	20 32 19	46.68	2.21
July 21, 1965	180	2182	153.33E	22 31 33	47.08	2.23
July 22, 1965	181	2183	123.49E	00 30 47	47.48	2.25
"	181	2184	093.64E	02 30 00	47.87	2.27
"	181	2185	063.79E	04 29 14	48.26	2.28
"	181	2186	033.95E	06 28 28	48.63	2.30
"	181	2187	004.10E	08 27 41	48.92	2.31
"	181	2188	025.73W	10 26 55	49.21	2.32
"	181	2189	055.58W	12 26 09	49.50	2.33
"	181	2190	085.43W	14 25 22	49.78	2.35
"	181	2191	115.27W	16 24 36	50.07	2.36
"	181	2192	145.12W	18 23 50	50.35	2.37
"	181	2193	174.96W	20 23 03	50.62	2.38
July 22, 1965	181	2194	155.18E	22 22 17	50.90	2.39
July 23, 1965	182	2195	125.33E	00 21 30	51.17	2.40
"	182	2196	095.49E	02 20 44	51.44	2.42
"	182	2197	065.64E	04 19 57	51.71	2.43
"	182	2198	035.79E	06 19 11	52.66	2.48
"	182	2199	005.95E	08 18 25	54.56	2.59
"	182	2200	023.89W	10 17 38	56.30	2.70
"	182	2201	053.73W	12 16 52	57.90	2.82
"	182	2202	083.58W	14 16 06	58.94	2.95
"	182	2203	113.43W	16 15 19	33.45	2.80
"	182	2204	143.27W	18 14 33	301.22	0.09
"	182	2205	173.12W	20 13 46	296.87	0.09
July 23, 1965	182	2206	157.03E	22 13 00	292.16	0.11
July 24, 1965	183	2207	127.18E	00 12 14	288.76	0.12

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TIROS IX OPERATIONAL ATTITUDE DATA

a DATE	b JULIAN DAY	c ORBIT NUMBER	d ASCENDING NODE Longitude (Deg)	e λ_o (Deg)	f ϕ_{max} (Deg)
July 24, 1965	183	2208	097.33E	02 11 27	286.23 0.14
	"	2209	067.49E	04 10 41	284.29 0.16
	"	2210	037.64E	06 09 54	282.75 0.18
	"	2211	007.79E	08 09 08	281.64 0.20
	"	2212	022.04W	10 08 22	280.71 0.21
	"	2213	051.89W	12 07 35	279.91 0.23
	"	2214	081.73W	14 06 49	279.23 0.25
	"	2215	111.58W	16 06 02	278.64 0.27
	"	2216	141.42W	18 05 16	278.12 0.28
	"	2217	171.27W	20 04 30	277.66 0.30
July 24, 1965	183	2218	158.87E	22 03 43	277.25 0.32
July 25, 1965	184	2219	129.03E	00 02 57	276.88 0.34
	"	2220	099.18E	02 02 10	276.55 0.35
	"	2221	069.34E	04 01 24	276.25 0.37
	"	2222	039.49E	06 00 38	275.98 0.39
	"	2223	009.64E	07 59 51	275.87 0.41
	"	2224	020.19W	09 59 05	276.14 0.43
	"	2225	050.04W	11 58 18	276.40 0.44
	"	2226	079.88W	13 57 32	276.62 0.46
	"	2227	109.73W	15 56 45	276.84 0.48
	"	2228	139.58W	17 55 59	277.04 0.50
	"	2229	169.42W	19 55 12	277.22 0.52
	"	2230	160.72E	21 54 26	277.39 0.54
July 25, 1965	184	2231	130.88E	23 53 39	277.55 0.56
July 26, 1965	185	2232	101.03E	01 52 53	277.70 0.57
	"	2233	071.19E	03 52 07	277.84 0.59
	"	2234	041.34E	05 51 20	277.97 0.61
	"	2235	011.49E	07 50 34	278.13 0.63
	"	2236	018.34W	09 49 47	278.34 0.65
	"	2237	048.19W	11 49 01	278.54 0.66
	"	2238	078.03W	13 48 14	278.74 0.68
July 26, 1965	185	2239	107.88W	15 47 28	278.92 0.70

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 TIROS IX OPERATIONAL ATTITUDE DATA

a DATE	b JULIAN DAY	c ORBIT NUMBER	d ASCENDING NODE		e λ_o	f ϵ_{max}
			Longitude (Deg)	Time (GMT) (Hr Min Sec)	(Deg)	(Deg)
July 26, 1965	185	2240	137.73W	17 46 41	279.09	0.72
	"	2241	167.57W	19 45 55	279.26	0.74
	"	2242	162.57E	21 45 08	279.41	0.75
July 26, 1965	185	2243	132.73E	23 44 22	279.57	0.77
July 27, 1965	186	2244	102.90E	01 43 36	279.71	0.79
	"	2245	073.06E	03 42 49	279.85	0.81
	"	2246	043.21E	05 42 03	279.98	0.82
	"	2247	013.37E	07 41 16	280.24	0.84
	"	2248	016.47W	09 40 30	280.70	0.86
	"	2249	046.31W	11 39 43	281.14	0.88
	"	2250	076.16W	13 38 57	299.68	0.36
	"	2251	106.01W	15 38 11	299.66	0.39
	"	2252	135.85W	17 37 24	299.64	0.41
	"	2253	165.70W	19 36 38	299.63	0.43
	"	2254	164.45E	21 35 51	299.62	0.45
July 27, 1965	186	2255	134.60E	23 35 05	299.62	0.47
July 28, 1965	187	2256	104.76E	01 34 18	299.62	0.49
	"	2257	074.91E	03 33 32	299.60	0.51
	"	2258	045.07E	05 32 45	299.60	0.53
	"	2259	015.22E	07 31 59	299.57	0.55
	"	2260	014.62W	09 31 12	299.55	0.57
	"	2261	044.46W	11 30 26	299.55	0.59
	"	2262	074.31W	13 29 39	299.53	0.61
	"	2263	104.15W	15 28 53	299.53	0.63
	"	2264	134.00W	17 28 06	299.52	0.65
	"	2265	163.84W	19 27 20	299.51	0.67
	"	2266	166.30E	21 26 33	299.50	0.69
July 28, 1965	187	2267	136.45E	23 25 47	299.49	0.71
July 29, 1965	188	2268	106.61E	01 25 00	299.49	0.73
	"	2269	076.76E	03 24 14	299.48	0.75
	"	2270	046.92E	05 23 27	299.47	0.77
July 29, 1965	188	2271	017.07E	07 22 41	299.46	0.79

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TIROS IX OPERATIONAL ATTITUDE DATA

a DATE	b JULIAN DAY	c ORBIT NUMBER	d ASCENDING NODE Longitude (Deg)	e λ_o (Deg)	f ϕ_{max} (Deg)
July 29, 1965	188	2272	012.76W	09 21 54	299.39 0.81
"	188	2273	042.61W	11 21 08	299.33 0.83
"	188	2274	072.45W	13 20 21	299.27 0.85
"	188	2275	102.30W	15 19 35	299.21 0.88
"	188	2276	132.15W	17 18 48	299.17 0.90
"	188	2277	161.99W	19 18 02	299.11 0.92
"	188	2278	168.15E	21 17 15	299.06 0.94
July 29, 1965	188	2279	138.31E	23 16 28	299.02 0.96
July 30, 1965	189	2280	108.46E	01 15 42	298.97 0.98
"	189	2281	078.62E	03 14 55	298.94 1.01
"	189	2282	048.77E	05 14 09	298.90 1.03
"	189	2283	018.93E	07 13 22	298.87 1.05
"	189	2284	010.91W	09 12 36	298.89 1.07
"	189	2285	040.75W	11 11 49	298.90 1.09
"	189	2286	070.60W	13 11 03	298.91 1.12
"	189	2287	100.44W	15 10 16	298.93 1.14
"	189	2288	130.29W	17 09 30	298.93 1.16
"	189	2289	160.14W	19 08 43	298.95 1.18
"	189	2290	170.01E	21 07 56	298.95 1.21
July 30, 1965	189	2291	140.16E	23 07 10	298.97 1.23
July 31, 1965	190	2292	110.32E	01 06 23	298.98 1.25
"	190	2293	080.47E	03 05 37	298.99 1.27
"	190	2294	050.63E	05 04 50	299.00 1.30
"	190	2295	020.78E	07 04 04	299.07 1.32
"	190	2296	009.05W	09 03 17	299.36 1.34
"	190	2297	038.90W	11 02 31	299.64 1.37
"	190	2298	068.74W	13 01 44	299.91 1.39
"	190	2299	098.59W	15 00 57	300.17 1.42
"	190	2300	128.43W	17 00 11	300.42 1.45
"	190	2301	158.28W	18 59 24	300.66 1.47
"	190	2302	171.87E	20 58 38	300.70 1.49
July 31, 1965	190	2303	142.02E	22 57 51	300.54 1.50

TABLE A-2
TIROS IX OPERATIONAL ATTITUDE DATA

a DATE	b JULIAN DAY	c ORBIT NUMBER	d ASCENDING NODE Longitude (Deg)	d Time (GMT) (Hr Min Sec)	e λ_o (Deg)	f ϵ_{max} (Deg)
August 1, 1965	191	2304	112.17E	00 57 04	300.37	1.51
"	191	2305	082.33E	02 56 18	300.21	1.52
"	191	2306	052.49E	04 55 31	300.06	1.53
"	191	2307	022.64E	06 54 45	299.91	1.54
"	191	2308	007.20W	08 53 58	299.76	1.55
"	191	2309	037.04W	10 53 11	299.60	1.56
"	191	2310	066.88W	12 52 25	299.45	1.57
"	191	2311	096.73W	14 51 38	299.32	1.58
"	191	2312	126.58W	16 50 52	299.17	1.59
"	191	2313	156.42W	18 50 05	299.03	1.60
"	191	2314	173.72E	20 49 18	298.89	1.62
August 1, 1965	191	2315	143.88E	22 48 32	298.73	1.63
August 2, 1965	192	2316	114.03E	00 47 45	298.59	1.64
"	192	2317	084.19E	02 46 59	298.45	1.66
"	192	2318	054.34E	04 46 12	298.31	1.67
"	192	2319	024.50E	06 45 25	298.18	1.69
"	192	2320	005.34W	08 44 39	298.04	1.70
"	192	2321	035.18W	10 43 52	297.91	1.72
"	192	2322	065.03W	12 43 05	297.78	1.73
"	192	2323	094.87W	14 42 19	297.65	1.74
"	192	2324	124.72W	16 41 32	297.52	1.76
"	192	2325	154.56W	18 40 45	297.40	1.77
"	192	2326	175.58E	20 39 59	297.27	1.79
August 2, 1965	192	2327	145.74E	22 39 12	297.20	1.80
August 3, 1965	193	2328	115.91E	00 38 26	297.12	1.81
"	193	2329	086.06E	02 37 39	297.05	1.83
"	193	2330	056.22E	04 36 52	296.97	1.84
"	193	2331	026.37E	06 36 06	296.90	1.85
"	193	2332	003.46W	08 35 19	296.84	1.87
"	193	2333	033.31W	10 34 32	306.11	1.09
"	193	2334	063.15W	12 33 46	304.66	0.86
August 3, 1965	193	2335	093.00W	14 32 59	304.28	0.87

TABLE A-2
TIROS IX OPERATIONAL ATTITUDE DATA

a DATE	b JULIAN DAY	c ORBIT NUMBER	d ASCENDING NODE Longitude (Deg)	e λ_o (Deg)	f ϕ_{max} (Deg)
August 3, 1965	193	2336	122.84W	16 32 12	303.93 0.88
"	193	2337	152.69W	18 31 26	303.60 0.89
"	193	2338	177.46E	20 30 39	303.25 0.91
August 3, 1965	193	2339	147.61E	22 29 52	302.92 0.92
August 4, 1965	194	2340	117.77E	00 29 06	302.40 0.94
"	194	2341	087.92E	02 28 19	301.89 0.95
"	194	2342	058.08E	04 27 32	301.40 0.97
"	194	2343	028.23E	06 26 45	300.93 0.99
"	194	2344	001.60W	08 25 59	300.48 1.01
"	194	2345	031.45W	10 25 12	300.04 1.03
"	194	2346	061.29W	12 24 25	299.67 1.05
"	194	2347	091.14W	14 23 39	109.48 0.99
"	194	2348	120.98W	16 22 52	109.80 0.98
"	194	2349	150.82W	18 22 05	110.11 0.97
"	194	2350	179.32E	20 21 19	110.43 0.97
August 4, 1965	194	2351	149.48E	22 20 32	110.75 0.96
August 5, 1965	195	2352	119.63E	00 19 45	111.08 0.95
"	195	2353	089.79E	02 18 58	111.52 0.94
"	195	2354	059.94E	04 18 11	111.85 0.93
"	195	2355	030.10E	06 17 25	112.15 0.92
"	195	2356	000.25E	08 16 38	112.17 0.90
"	195	2357	029.58W	10 15 51	112.19 0.88
"	195	2358	059.43W	12 15 04	112.21 0.86
"	195	2359	089.27W	14 14 18	112.22 0.84
"	195	2360	119.12W	16 13 31	112.25 0.82
"	195	2361	148.96W	18 12 44	112.27 0.80
"	195	2362	178.80W	20 11 57	112.29 0.78
August 5, 1965	195	2363	151.34E	22 11 11	112.31 0.76
August 6, 1965	196	2364	121.50E	00 10 24	112.35 0.74
"	196	2365	091.65E	02 09 37	112.37 0.72
"	196	2366	061.81E	04 08 50	112.39 0.70
August 6, 1965	196	2367	031.96E	06 08 04	112.26 0.69

TABLE A-2
TIROS IX OPERATIONAL ATTITUDE DATA

a DATE	b JULIAN DAY	c ORBIT NUMBER	d ASCENDING Longitude (Deg)	e λ_o (Deg)	f ϵ_{max} (Deg)
August 6, 1965	196	2368	002.12E	08 07 17	111.76 0.69
"	196	2369	027.72W	10 06 30	111.29 0.69
"	196	2370	057.56W	12 05 43	110.80 0.70
"	196	2371	087.40W	14 04 57	110.33 0.70
"	196	2372	117.25W	16 04 10	109.87 0.71
"	196	2373	147.09W	18 03 23	109.41 0.71
"	196	2374	176.94W	20 02 36	108.95 0.72
August 6 1965	196	2375	153.21E	22 01 49	108.50 0.72
August 7, 1965	197	2376	123.36E	00 01 03	108.06 0.73
"	197	2377	093.52E	02 00 16	107.63 0.73
"	197	2378	063.67E	03 59 29	107.19 0.74
"	197	2379	033.83E	05 58 42	106.77 0.74
"	197	2380	003.98E	07 57 55	106.52 0.74
"	197	2381	025.85W	09 57 09	106.57 0.72
"	197	2382	055.69W	11 56 22	106.64 0.70
"	197	2383	085.54W	13 55 35	106.69 0.69
"	197	2384	115.38W	15 54 48	106.75 0.67
"	197	2385	145.23W	17 54 01	106.82 0.65
"	197	2386	175.07W	19 53 15	106.89 0.63
"	197	2387	155.08E	21 52 28	106.97 0.62
August 7, 1965	197	2388	125.23E	23 51 41	107.05 0.60
August 8, 1965	198	2389	095.39E	01 50 54	107.13 0.58
"	198	2390	065.54E	03 50 07	107.22 0.57
"	198	2391	035.70E	05 49 21	107.33 0.55
"	198	2392	005.85E	07 48 34	107.42 0.53
"	198	2393	023.98W	09 47 47	107.53 0.51
"	198	2394	053.83W	11 47 00	107.64 0.50
"	198	2395	083.67W	13 46 13	107.77 0.48
"	198	2396	113.51W	15 45 26	107.92 0.46
"	198	2397	143.36W	17 44 39	108.07 0.45
"	198	2398	173.20W	19 43 53	108.22 0.43
August 8,	198	2399	156.95E	21 43 06	108.39 0.41

TABLE A-2
TIROS IX OPERATIONAL ATTITUDE DATA

a DATE	b JULIAN DAY	c ORBIT NUMBER	d ASCENDING NODE (Deg)	e λ_o (Deg)	f ϕ_{max} (Deg)
August 8, 1965	198	2400	127.10E	23 42 19	108.56 0.40
August 9, 1965	199	2401	097.26E	01 41 32	108.77 0.38
"	199	2402	067.41E	03 40 45	108.99 0.36
"	199	2403	037.57E	05 39 58	109.23 0.35
"	199	2404	007.72E	07 39 12	109.52 0.33
"	199	2405	022.11W	09 38 25	109.82 0.31
"	199	2406	051.95W	11 37 38	110.15 0.30
"	199	2407	081.80W	13 36 51	110.55 0.28
"	199	2408	111.64W	15 36 04	110.96 0.26
"	199	2409	141.49W	17 35 17	111.44 0.25
"	199	2410	171.33W	19 34 30	112.00 0.23
"	199	2411	158.81E	21 33 44	112.65 0.21
August 9, 1965	199	2412	128.97E	23 32 57	113.45 0.20
August 10, 1965	200	2413	099.71E	01 32 10	114.31 0.18
"	200	2414	069.87E	03 31 23	115.44 0.16
"	200	2415	040.02E	05 30 36	116.70 0.15
"	200	2416	010.18E	07 29 49	118.31 0.13
"	200	2417	019.65W	09 29 02	120.13 0.11
"	200	2418	049.50W	11 28 15	122.45 0.10
"	200	2419	079.34W	13 27 28	125.48 0.08
"	200	2420	109.19W	15 26 41	129.77 0.07
"	200	2421	139.03W	17 25 55	136.36 0.06
"	200	2422	168.88W	19 25 08	147.25 0.04
"	200	2423	161.27E	21 24 21	165.79 0.03
August 10, 1965	200	2324	131.43E	23 23 34	194.22 0.03
August 11, 1965	201	2425	101.58E	01 22 47	262.35 0.42
"	201	2426	071.74E	03 22 00	262.68 0.43
"	201	2427	041.90E	05 21 13	263.00 0.44
"	201	2428	012.05E	07 20 26	263.29 0.46
"	201	2429	017.78W	09 19 39	263.58 0.47
"	201	2430	047.63W	11 18 52	263.85 0.48
August 11, 1965	201	2431	077.47W	13 18 05	264.10 0.49

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TIROS IX OPERATIONAL ATTITUDE DATA

a DATE	b JULIAN DAY	c ORBIT NUMBER	d ASCENDING NODE Longitude (Deg)	e λ_o (Deg)	f ϵ_{max} (Deg)
			Time (GMT) (Hr Min Sec)		
August 11, 1965	201	2432	107.31W	15 17 18	265.34 0.49
"	201	2433	137.16W	17 16 32	266.50 0.48
"	201	2434	167.00W	19 15 45	267.70 0.48
"	201	2435	163.14E	21 14 58	268.94 0.47
August 11, 1965	201	2436	133.30E	23 14 11	270.21 0.46
August 12, 1965	202	2437	103.46E	01 13 24	271.53 0.46
"	202	2438	073.61E	03 12 37	272.88 0.45
"	202	2439	043.77E	05 11 51	274.28 0.44
"	202	2440	013.93E	07 11 04	275.72 0.44
"	202	2441	015.91W	09 10 17	277.20 0.43
"	202	2442	045.75W	11 09 30	278.72 0.42
"	202	2443	075.60W	13 08 43	280.27 0.42
"	202	2444	105.44W	15 07 56	281.86 0.42
"	202	2445	135.28W	17 07 09	283.45 0.41
"	202	2446	165.12W	19 06 22	285.04 0.41
"	202	2447	165.02E	21 05 35	286.64 0.41
August 12, 1965	202	2448	135.18E	23 04 48	288.25 0.41
August 13, 1965	203	2449	105.33E	01 04 01	289.85 0.41
"	203	2450	075.49E	03 03 14	291.46 0.41
"	203	2451	045.65E	05 02 27	293.06 0.41
"	203	2452	015.80E	07 01 40	294.65 0.41
"	203	2453	014.03W	09 00 53	296.24 0.42
"	203	2454	043.87W	11 00 06	297.81 0.42
"	203	2455	073.72W	12 59 19	299.37 0.42
"	203	2456	103.56W	14 58 32	300.02 0.42
"	203	2457	133.41W	16 57 45	299.78 0.43
"	203	2458	163.25W	18 56 58	299.54 0.44
"	203	2459	166.90E	20 56 11	299.32 0.45
August 13, 1965	203	2460	137.06E	22 55 24	299.10 0.46
August 14, 1965	204	2461	107.21E	00 54 37	298.90 0.47
"	204	2462	077.37E	02 53 50	298.70 0.48
August 14, 1965	204	2463	047.52E	04 53 03	298.51 0.49

TABLE A-2
TIROS IX OPERATIONAL ATTITUDE DATA

a DATE	b JULIAN DAY	c ORBIT NUMBER	d ASCENDING NODE Longitude (Deg)	d Time (GMT) (Hr Min Sec)	e λ_o (Deg)	f ϕ_{max} (Deg)
August 14, 1965	204	2464	017.68E	06 52 16	298.32	0.50
"	204	2465	012.15W	08 51 29	298.15	0.51
"	204	2466	042.00W	10 50 42	297.97	0.52
"	204	2467	071.84W	12 49 55	297.81	0.53
"	204	2468	101.68W	14 49 08	297.43	0.54
"	204	2469	131.53W	16 48 21	297.00	0.55
"	204	2470	161.37W	18 47 34	296.58	0.56
"	204	2471	168.78E	20 46 47	296.18	0.57
August 14, 1965	204	2472	138.94E	22 46 00	295.80	0.58
August 15, 1965	205	2473	109.09E	00 45 13	295.43	0.59
"	205	2474	079.25E	02 44 26	295.08	0.60
"	205	2475	049.40E	04 43 39	294.73	0.61
"	205	2476	019.56E	06 42 52	294.40	0.62
"	205	2477	010.27W	08 42 05	294.08	0.63
"	205	2478	040.11W	10 41 18	293.77	0.64
"	205	2479	069.96W	12 40 31	293.47	0.65
"	205	2480	099.80W	14 39 44	292.97	0.66
"	205	2481	129.65W	16 38 57	292.60	0.66
"	205	2482	159.49W	18 38 10	292.24	0.67
"	205	2483	170.66E	20 37 23	291.88	0.67
August 15, 1965	205	2484	140.82E	22 36 36	291.52	0.67
August 16, 1965	206	2485	110.97E	00 35 49	291.16	0.68
"	206	2486	081.13E	02 35 01	290.81	0.68
"	206	2487	051.29E	04 34 14	290.46	0.68
"	206	2488	021.44E	06 33 27	290.11	0.69
"	206	2489	008.39W	08 32 40	289.77	0.69
"	206	2490	038.23W	10 31 53	289.43	0.69
"	206	2491	068.08W	12 31 06	289.10	0.70
"	206	2492	097.92W	14 30 19	288.76	0.70
"	206	2493	127.76W	16 29 32	288.43	0.70
"	206	2494	157.61W	18 28 45	288.11	0.71
August 16, 1965	206	2495	172.54E	20 27 58	287.78	0.71

TABLE A-2
 TIROS IX OPERATIONAL ATTITUDE DATA

a DATE	b JULIAN DAY	c ORBIT NUMBER	d ASCENDING Longitude (Deg)	e λ_o (Deg)	f t_{max} (Deg)
August 16, 1965	206	2496	142.70E	22 27 11	287.46 0.71
August 17, 1965	207	2497	112.27E	00 26 24	287.39 0.72
"	207	2498	082.43E	02 25 37	287.90 0.74
"	207	2499	052.58E	04 24 49	288.39 0.75
"	207	2500	022.74E	06 24 02	288.85 0.77
"	207	2501	007.09W	08 23 15	289.30 0.78
"	207	2502	036.93W	10 22 28	289.72 0.80
"	207	2503	066.78W	12 21 41	290.13 0.82
"	207	2504	096.62W	14 20 54	290.53 0.83
"	207	2505	126.46W	16 20 07	290.91 0.85
"	207	2506	156.30W	18 19 20	291.28 0.87
"	207	2507	173.84E	20 18 33	291.63 0.88
August 17, 1965	207	2508	144.00E	22 17 45	291.97 0.90
August 18, 1965	208	2509	114.16E	00 16 58	292.36 0.92
"	208	2510	084.31E	02 16 11	292.83 0.93
"	208	2511	054.47E	04 15 24	293.29 0.95
"	208	2512	024.63E	06 14 37	293.74 0.97
"	208	2513	005.21W	08 13 50	294.17 0.98
"	208	2514	035.05W	10 13 03	294.58 1.00
"	208	2515	064.89W	12 12 15	295.02 1.01
"	208	2516	094.74W	14 11 28	296.32 1.00
"	208	2517	124.58W	16 10 41	297.65 0.98
"	208	2518	154.42W	18 09 54	299.03 0.97
"	208	2519	175.73E	20 09 07	300.46 0.95
August 18, 1965	208	2520	145.88E	22 08 20	301.92 0.94
August 19, 1965	209	2521	116.04E	00 07 32	303.41 0.93
"	209	2522	086.20E	02 06 45	304.45 0.91
"	209	2523	056.36E	04 05 58	305.54 0.88
"	209	2524	026.51E	06 05 11	306.70 0.86
"	209	2525	003.32W	08 04 24	307.90 0.84
"	209	2526	033.16W	10 03 37	309.18 0.82
August 19, 1965	209	2527	063.01W	12 02 49	310.51 0.80

TABLE A-2
TIROS IX OPERATIONAL ATTITUDE DATA

a DATE	b JULIAN DAY	c ORBIT NUMBER	d ASCENDING NODE Longitude (Deg)	e λ_o (Deg)	f ϕ_{max} (Deg)
August 19, 1965	209	2528	092. 85W	14 02 02	311. 92 0.78
"	209	2529	122. 69W	16 01 15	313. 40 0.76
"	209	2530	152. 53W	18 00 28	314. 95 0.74
"	209	2531	177. 61E	19 59 41	316. 58 0.72
"	209	2532	147. 77E	21 58 53	318. 30 0.71
August 19, 1965	209	2533	117. 93E	23 58 06	320. 11 0.69
August 20, 1965	210	2534	088. 09E	01 57 19	322. 18 0.67
"	210	2535	058. 24E	03 56 32	324. 54 0.65
"	210	2536	028. 40E	05 55 45	327. 04 0.63
"	210	2537	001. 43W	07 54 57	329. 69 0.62
"	210	2538	031. 28W	09 54 10	332. 47 0.60
"	210	2539	061. 12W	11 53 23	335. 40 0.59
"	210	2540	090. 96W	13 52 36	338. 46 0.57
"	210	2541	120. 80W	15 51 48	341. 64 0.56
"	210	2542	150. 65W	17 51 01	344. 93 0.56
"	210	2543	179. 50E	19 50 14	348. 32 0.55
"	210	2544	149. 66E	21 49 27	351. 79 0.54
August 20, 1965	210	2545	119. 82E	23 48 40	355. 29 0.54
August 21, 1965	211	2546	089. 97E	01 47 52	358. 86 0.54
"	211	2547	060. 13E	03 47 05	2. 56 0.54
"	211	2548	030. 29E	05 46 18	6. 24 0.54
"	211	2549	000. 45E	07 45 31	9. 89 0.55
"	211	2550	029. 39W	09 44 43	13. 46 0.55
"	211	2551	059. 23W	11 43 56	16. 94 0.56
"	211	2552	089. 07W	13 43 09	20. 31 0.57
"	211	2553	118. 92W	15 42 22	23. 55 0.58
"	211	2554	148. 76W	17 41 34	26. 64 0.60
"	211	2555	178. 60W	19 40 47	29. 58 0.61
"	211	2556	151. 55E	21 40 00	32. 37 0.63
August 21, 1965	211	2557	121. 70E	23 39 13	35. 01 0.65
August 22, 1965	212	2558	091. 86E	01 38 25	37. 47 0.67

TABLE A-2
TIROS IX OPERATIONAL ATTITUDE DATA

a DATE	b JULIAN DAY	c ORBIT NUMBER	d ASCENDING NODE		e λ_o (Deg)	f δ_{max} (Deg)
			Longitude (Deg)	Time (GMT) (Hr Min Sec)		
August 22, 1965	212	2559	062.02E	03 37 38	39.80	0.69
"	212	2560	032.18E	05 36 51	41.99	0.71
"	212	2561	002.34E	07 36 03	44.06	0.73
"	212	2562	027.50W	09 35 16	45.99	0.75
"	212	2563	057.34W	11 34 29	47.82	0.78
"	212	2564	087.18W	13 33 42	49.53	0.80
"	212	2565	117.02W	15 32 54	51.14	0.83
"	212	2566	146.87W	17 32 07	52.66	0.85
"	212	2567	176.71W	19 31 20	54.09	0.88
"	212	2568	153.44E	21 30 32	55.43	0.90
August 22, 1965	212	2569	123.60E	23 29 45	56.69	0.93
August 23, 1965	213	2570	093.75E	01 28 58	57.89	0.96
"	213	2571	063.91E	03 28 11	59.02	0.99
"	213	2572	034.07E	05 27 23	60.08	1.02
"	213	2573	004.23E	07 26 36	61.09	1.04
"	213	2574	025.60W	09 25 49	62.04	1.07
"	213	2575	055.45W	11 25 01	62.95	1.10
"	213	2576	085.29W	13 24 14	63.80	1.13
"	213	2577	115.13W	15 23 27	64.62	1.16
"	213	2578	144.97W	17 22 39	65.39	1.19
"	213	2579	174.82W	19 21 52	66.12	1.22
"	213	2580	155.33E	21 21 05	66.82	1.25
August 23, 1965	213	2581	125.49E	23 20 17	67.44	1.28
August 24, 1965	214	2582	095.67E	01 19 30	68.09	1.31
"	214	2583	065.83E	03 18 43	68.70	1.34
"	214	2584	035.99E	05 17 55	69.30	1.37
"	214	2585	006.15E	07 17 08	69.86	1.40
"	214	2586	023.69W	09 16 21	70.40	1.43
"	214	2587	053.53W	11 15 33	70.92	1.47
"	214	2588	083.37W	13 14 46	71.41	1.50
"	214	2589	113.21W	15 13 59	71.89	1.53
"	214	2590	143.06W	17 13 12	72.35	1.56
August 24, 1965	214	2591	172.90W	19 12 24	72.78	1.59

TABLE A-2
TIROS IX OPERATIONAL ATTITUDE DATA

a DATE	b JULIAN DAY	c ORBIT NUMBER	d ASCENDING NODE Longitude (Deg)	e λ_o (Deg)	f ϕ_{max} (Deg)
August 24, 1965	214	2592	157.25E	21 11 37	73.20 1.62
August 24, 1965	214	2593	127.41E	23 10 50	73.61 1.66
August 25, 1965	215	2594	097.56E	01 10 02	73.70 1.66
"	215	2595	067.72E	03 09 15	73.43 1.64
"	215	2596	037.88E	05 08 27	73.16 1.63
"	215	2597	008.04E	07 07 40	72.89 1.61
"	215	2598	021.79W	09 06 53	72.61 1.59
"	215	2599	051.64W	11 06 05	72.32 1.57
"	215	2600	081.48W	13 05 18	72.02 1.55
"	215	2601	111.32W	15 04 31	71.72 1.53
"	215	2602	141.16W	17 03 43	71.41 1.51
"	215	2603	171.00W	19 02 56	71.09 1.50
"	215	2604	159.15E	21 02 09	70.76 1.48
August 25, 1965	215	2605	129.30E	23 01 21	70.43 1.46
August 26, 1965	216	2606	099.46E	01 00 34	70.17 1.45
"	216	2607	069.62E	02 59 47	70.05 1.45
"	216	2608	039.78E	04 58 59	69.93 1.45
"	216	2609	009.94E	06 58 12	69.82 1.45
"	216	2610	019.90W	08 57 24	69.70 1.45
"	216	2611	049.74W	10 56 37	69.58 1.45
"	216	2612	079.58W	12 55 50	69.46 1.45
"	216	2613	109.42W	14 55 02	69.35 1.45
"	216	2614	139.26W	16 54 15	69.23 1.45
"	216	2615	169.11W	18 53 28	69.11 1.45
"	216	2616	161.04E	20 52 40	68.99 1.45
August 26, 1965	216	2617	131.20E	22 51 53	68.87 1.45
August 27, 1965	217	2618	101.36E	00 51 05	68.75 1.45
"	217	2619	071.52E	02 50 18	68.61 1.45
"	217	2620	041.68E	04 49 31	68.48 1.45
"	217	2621	011.83E	06 48 43	68.34 1.44
"	217	2622	018.00W	08 47 56	68.21 1.44
August 27, 1965	217	2623	047.84W	10 47 08	68.07 1.44

TABLE A-2
TIROS IX OPERATIONAL ATTITUDE DATA

a DATE	b JULIAN DAY	c ORBIT NUMBER	d ASCENDING NODE Longitude (Deg)	e λ_o (Deg)	f ϵ_{max} (Deg)
			Time (GMT) (Hr Min Sec)		
August 27, 1965	217	2624	077. 68W	12 46 21	67.93 1.44
"	217	2625	107. 52W	14 45 33	67.79 1.44
"	217	2626	137. 37W	16 44 46	67.66 1.44
"	217	2627	167. 21W	18 43 59	67.52 1.44
"	217	2628	162. 94E	20 43 11	67.38 1.43
August 27, 1965	217	2629	133. 10E	22 42 24	67.24 1.43
August 28, 1965	218	2630	103. 26E	00 41 36	67.09 1.43
"	218	2631	073. 42E	02 40 49	66.89 1.43
"	218	2632	043. 58E	04 40 02	66.69 1.42
"	218	2633	013. 73E	06 39 14	66.49 1.42
"	218	2634	016. 10W	08 38 27	66.29 1.41
"	218	2635	045. 94W	10 37 39	66.09 1.41
"	218	2636	075. 78W	12 36 52	65.88 1.40
"	218	2637	105. 62W	14 36 04	65.67 1.40
"	218	2638	135. 46W	16 35 17	65.47 1.39
"	218	2639	165. 31W	18 34 30	65.26 1.39
"	218	2640	164. 84E	20 33 42	65.04 1.38
August 28, 1965	218	2641	135. 00E	22 32 55	64.83 1.38
August 29, 1965	219	2642	105. 16E	00 32 07	64.60 1.37
"	219	2643	075. 32E	02 31 20	64.33 1.36
"	219	2644	045. 48E	04 30 32	64.05 1.35
"	219	2645	015. 64E	06 29 45	63.77 1.35
"	219	2646	014. 20W	08 28 57	63.48 1.34
"	219	2647	044. 04W	10 28 10	63.20 1.33
"	219	2648	073. 88W	12 27 22	62.91 1.32
"	219	2649	103. 72W	14 26 35	62.61 1.31
"	219	2650	133. 56W	16 25 47	62.31 1.31
"	219	2651	163. 40W	18 25 00	62.01 1.30
"	219	2652	166. 75E	20 24 13	61.70 1.29
August 29, 1965	219	2653	136. 90E	22 23 25	61.39 1.28
August 30, 1965	220	2654	107. 06E	00 22 38	61.04 1.27
August 30, 1965	220	2655	077. 22E	02 21 50	60.63 1.26

TABLE A-2
TIROS IX OPERATIONAL ATTITUDE DATA

a DATE	b JULIAN DAY	c ORBIT NUMBER	d ASCENDING NODE Longitude (Deg)	e λ_o (Deg)	f ϕ_{max} (Deg)
August 30, 1965	220	2656	047.38E	04 21 03	60.21 1.25
"	220	2657	017.54E	06 20 15	59.78 1.24
"	220	2658	012.29W	08 19 28	59.35 1.23
"	220	2659	042.13W	10 18 40	58.90 1.22
"	220	2660	071.98W	12 17 53	58.45 1.20
"	220	2661	101.82W	14 17 05	57.99 1.19
"	220	2662	131.66W	16 16 18	57.52 1.18
"	220	2663	161.50W	18 15 30	57.04 1.17
"	220	2664	168.65E	20 14 43	56.55 1.16
August 30, 1965	220	2665	138.81E	22 13 55	56.05 1.15
August 31, 1965	221	2666	108.94E	00 13 08	55.60 1.14
"	221	2667	079.10E	02 12 20	55.34 1.14
"	221	2668	049.26E	04 11 33	55.08 1.13
"	221	2669	019.42E	06 10 45	54.82 1.13
"	221	2670	010.41W	08 09 58	54.56 1.12
"	221	2671	040.25W	10 09 10	54.29 1.12
"	221	2672	070.09W	12 08 23	54.02 1.11
"	221	2673	099.93W	14 07 35	53.75 1.11
"	221	2674	129.78W	16 06 48	53.48 1.10
"	221	2675	159.62W	18 06 00	53.20 1.10
"	221	2676	170.53E	20 05 13	52.93 1.09
August 31, 1965	221	2677	140.69E	22 04 25	52.65 1.09

APPENDIX B

TIROS IX SUBPOINT TRACK

Table B-1 lists the orbital elements of TIROS IX for Epoch 28 March 1965, at 00 00 00 Universal Time.

Figure B-1 serves as an aid in correlating spatial attitude parameters (λ_o , ϕ_{max}) with terrestrial coordinates. The insert of Figure B-1 shows the orbital track of TIROS IX as it would appear on a Mercator projection of the earth (the base map). Construction of the subpoint track was accomplished with orbital element data shown in Table B-1. The hatch marks along the subpoint track are 10° intervals of argument. Argument is the geocentric angle of a point along the orbit, measured in degrees and in the direction in which the satellite is moving. Because of the excessive eccentricity of the TIROS IX orbit, it is appropriate to use argument here (and in the tabulation of λ_o in Table A-2) rather than the time from ascending node used in other TIROS Attitude Summaries (Ref. 5). Plots of time from ascending node would vary significantly with the argument of perigee.

The subpoint track diagram can be used to estimate the spatial orientation of the spin axis at other values of argument than that of the λ_o tabulated in Table A-2. ϕ (roll) will attain its greatest positive value (numerically equivalent to ϕ_{max}) 90° of argument beyond λ_o , and its greatest negative value ($-\phi_{max}$) 270° of argument beyond λ_o . ϕ will be zero at λ_o and $\lambda_o \pm 180^\circ$.

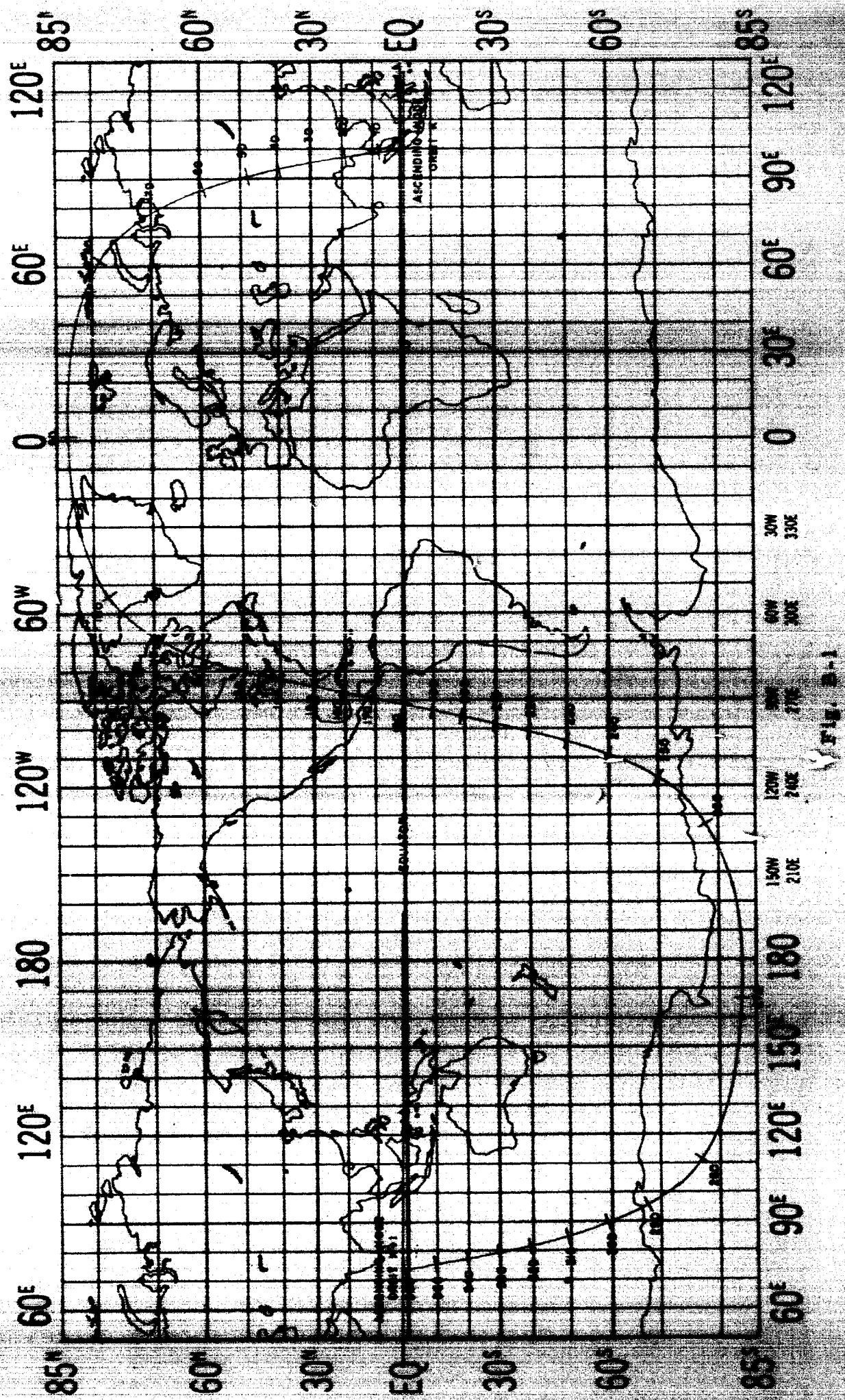
The subpoint track insert operates (in a mechanical sense) similar to a slide rule. The equator line on the insert should be made coincident with the equator on the base map. The insert may then be moved horizontally until the ascending node of the subpoint track coincides with the ascending node longitude of the desired orbit.

TABLE B-1
SAMPLE ORBITAL ELEMENTS

EPOCH 28 March 1965; 00 00 00 Universal Time

SEMI-MAJOR AXIS	8018.60	KILOMETERS
ECCENTRICITY	0.11703	
INCLINATION	96.414	DEGREES
MEAN ANOMALY	162.912	DEGREES
ARGUMENT OF PERIGEE	45.728	DEGREES
/MOTION	- 2.1546	DEG/DAY
RIGHT ASCENSION OF ASCENDING NODE	11.352	DEGREES
/MOTION	+ 0.5135	DEG/DAY
ANOMALISTIC PERIOD	119.09491	MINUTES
/MOTION	- 0.00009	MIN/DAY
HEIGHT OF PERIGEE	701.38	KILOMETERS
HEIGHT OF APOGEE	2579.04	KILOMETERS
VELOCITY AT PERIGEE	28551	KM/HR
VELOCITY AT APOGEE	22566	KM/HR
GEOCENTRIC LATITUDE OF PERIGEE	45.361	DEGREES

TIROS II SUB-POINT TRACK



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3. Bartlett, R., 1965: ARACON Photogrammetric Attitude System Hardware Description and Maintenance Manual, Report under Contract No. NAS 5-3953, ARACON Geophysics Company.
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